

BOSTON PUBLIC LIBRARY



3 9999 06298 242 4

WESLEYAN UNIVERSITY
PUBLICATION CENTER
College of Social Studies

WESLEYAN UNIVERSITY

LIBRARY.



No. 1128

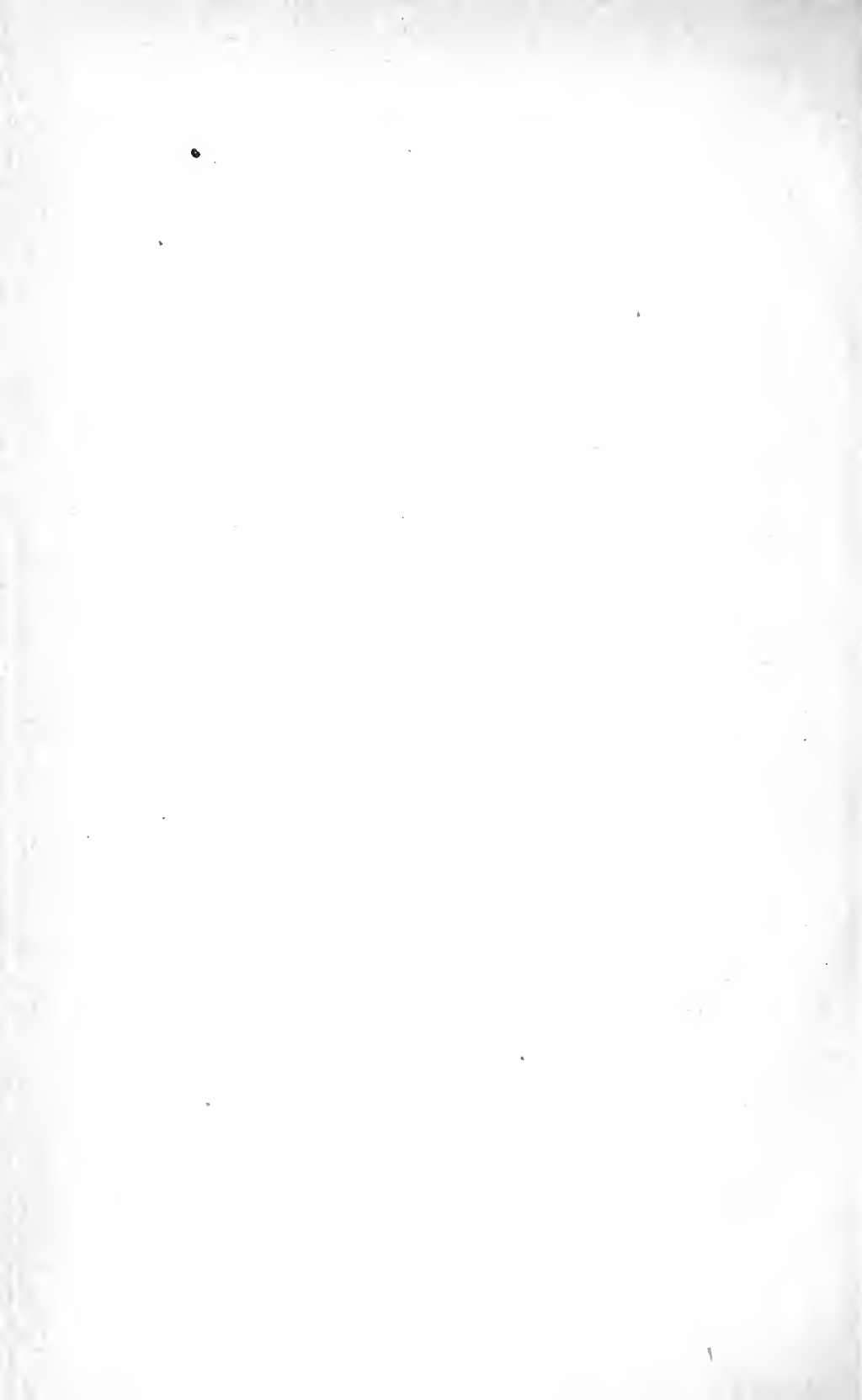
Accession No. 19812

, cop. 2

PRESENTED BY

SUPERINTENDENT OF DOCUMENTS

Digitized by the Internet Archive
in 2011 with funding from
Boston Public Library



INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

HEARINGS

BEFORE A

SPECIAL COMMITTEE INVESTIGATING THE NATIONAL DEFENSE PROGRAM UNITED STATES SENATE SEVENTY-EIGHTH CONGRESS

FIRST SESSION

PURSUANT TO

S. Res. 6

(78th Congress)

(Extending S. Res. 71—77th Congress)

A RESOLUTION AUTHORIZING AND DIRECTING
AN INVESTIGATION OF THE NATIONAL
DEFENSE PROGRAM

(See S. Res. 312)

PART 22

SEPTEMBER 11, OCTOBER 26, NOVEMBER 12, 13, 16,
17, 19, 22, 23, 24, AND DECEMBER 20, 1943

THE CANOL PROJECT

Printed for the use of the Special Committee Investigating
the National Defense Program

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1944

SPECIAL COMMITTEE INVESTIGATING THE NATIONAL DEFENSE
PROGRAM

HARRY S. TRUMAN, Missouri, *Chairman*

TOM CONNALLY, Texas

OWEN BREWSTER, Maine

JAMES M. MEAD, New York

HAROLD H. BURTON, Ohio

MON C. WALLGREN, Washington

JOSEPH H. BALL, Minnesota

CARL A. HATCH, New Mexico

HOMER FERGUSON, Michigan

HARLEY M. KILGORE, West Virginia

HUGH A. FULTON, *Chief Counsel*

LYDIA LEE, *Editor*

CONTENTS

Testimony of—	Page
Amberg, Julius H., special assistant, Secretary of War.....	9337-9379,
9404-9406, 9410, 9414, 9416, 9418-9430, 9433-9435, 9439,	
9449-9450, 9592, 9612-9613, 9615, 9618, 9627, 9671, 9685,	
9713-9716.	
Bimel, Fred B., Imperial Oil Co., Ltd.....	9451-9456, 9459-9470, 9472
Brady, James F., refinery construction superintendent, Bechtel,	
Price-Callahan.....	9324-9328
Carter, Maj. Gen. Arthur H., General Staff Corps, Fiscal Director,	
Army Service Forces.....	9407-9450, 9652-9654
Covell, Brig. Gen. W. E. R., United States Army.....	9354-9359,
	9369-9371, 9375
Curran, Charles D., principal budget examiner, Bureau of the	
Budget.....	9554-9562
Davies, Ralph K., Deputy Petroleum Administrator for War.....	9535,
	9538-9540, 9544-9546
Easterwood, Maj. O. P., Jr., Corps of Engineers, United States	
Army.....	9356, 9359, 9365-9367
Friedlich, Lt. Col. H. A., United States Army.....	9351-9352, 9359, 9483-9484,
9499-9502, 9504, 9507-9511, 9514, 9517-9520, 9524-9526	
Gavin, Leon H., Member of Congress, representing Twentieth Dis-	
trict of Pennsylvania.....	9546-9550
Graham, James H., special assistant, Under Secretary of War.....	9381-9406,
	9573-9596
Hake, Maj. Benjamin F., Quartermaster Corps, United States	
Army.....	9354-9359, 9371-9372
Ickes, Harold L., Secretary of the Interior, Petroleum Adminis-	
trator for War.....	9527-9550
Johnston, Col. J. B., district engineer, Whitehorse.....	9322
Kitcherman, Lt. Col. Raymond F., commanding officer, United States	
Army Air Forces, Whitehorse, Yukon Territory, Canada.....	9303-9306
Knowles, Lt. Col. Miles H., office, Under Secretary of War.....	9287-9288, 9300
LeSueur, Richard, Imperial Oil Co., Ltd.....	9451-9452,
	9455-9459, 9461, 9464-9473
Locke, E. A. assistant to Chairman, War Production Board.....	9564-9565, 9567
Lowe, Brig. Gen. Frank E., executive officer to the committee.....	9316-9317
Miller, Max B., Director of Construction, Petroleum Administration	
for War.....	9539-9541
Nelson, Elmer Johann, civil engineer, Standard Oil Co., Inc., Alaska.....	9328-
	9334
O'Connor, Gen. J. F., commanding general, Northwest Service Com-	
mand, United States Army.....	9288-9303, 9311-9313, 9315-9316, 9334
Patterson, Robert P., Under Secretary of War.....	9596-9629
Peckham, Brig. Gen. Howard L., United States Army.....	9363, 9365
Pyle, Maj. Howard C., Quartermaster Corps, United States Army.....	9347,
	9357-9359, 9364, 9367-9368, 9371-9372
Pyron, Brig. Gen. Walter, United States Army.....	9374-
	9379, 9502-9526, 9631-9652, 9701-9702, 9713
Robins, Maj. Gen. T. M., Deputy Chief of Engineers, United States	
Army.....	9479-9482
Russell, Brig. Gen. Carl A., Deputy Chief, Theater Group, Operations	
Division, War Department General Staff.....	9473-9477
Smith, Harold D., Director, Bureau of the Budget.....	9551-9557, 9559-9560
Somervell, Lt. Gen. Brehon B., commanding general, Army Service	
Forces.....	9655-9714, 9716-9717
Streett, Maj. Gen. St. Clair., commanding general, Second Air Force,	
United States Army.....	9484-9501

Testimony of—Continued.	Page
Whitney, Le Roy, technical consultant to Chairman, War Production Board.....	9562-9563, 9565-9572
Wild, Lt. Col. J. M., Corps of Engineers, United States Army.....	9346-9347, 9349-9353, 9355-9356, 9358, 9360-9363, 9368-9371, 9375, 9378-9379.
Worsham, Brig. Gen. L. D., division engineer, northwest division, United States Army.....	9288-9295, 9299-9301, 9306-9324, 9328, 9334-9335, 9345-9349, 9354, 9356, 9358-9373, 9376, 9379, 9664, 9715
The Alaska highway project.....	9288
Oil products distribution lines.....	9299
Whitehorse refinery project.....	9324
Standard Oil of California operating and consulting services.....	9328
Army's justification for project.....	9337
Genesis of project.....	9339
The present situation.....	9340
The projects.....	9341
Distribution system.....	9342
Oil production.....	9342
The contracts.....	9345
Agreement with Canada.....	9347
Pipe-line capacity.....	9357
Project cost data.....	9360
Planning of the project.....	9373, 9473, 9573, 9606, 9632, 9676
Attitude of Imperial Oil Co. toward project.....	9451
Attitude of Petroleum Administration for War toward project.....	9527
Criticism of project by Representative Leon H. Gavin.....	9546
Bureau of Budget review of project.....	9551
Review of requirements and facilities for project.....	9562
Army's justification for the project.....	9596
Description of the project.....	9597
Petroleum resources.....	9597
Situation in the spring of 1942.....	9598
Army plans for defense of Alaska.....	9598
Decision to use Norman oil.....	9599
Alternate source of fuel.....	9600
Execution of the project.....	9601
The present situation.....	9601
Importance of sources of supply near the fighting fronts.....	9602
Post-war uses.....	9603
Appraisal of the project.....	9619
Army's justification for the project.....	9655
Schedule and summary of exhibits.....	v
Saturday, September 11, 1943.....	9287
Tuesday, October 26, 1943.....	9337
Friday, November 12, 1943.....	9381
Saturday, November 13, 1943.....	9407
Tuesday, November 16, 1943.....	9451
Wednesday, November 17, 1943.....	9479
Friday, November 19, 1943.....	9483
Monday, November 22, 1943.....	9527
Tuesday, November 23, 1943.....	9573
Wednesday, November 24, 1943.....	9631
Monday, December 20, 1943.....	9655
Appendix.....	9719
Supplemental data.....	9912
Index ¹	I

¹ Name and company only, a consolidated subject matter index will appear in the final volume of these hearings.

SCHEDULE OF EXHIBITS

Number and summary of exhibits	Intro- duced at page	Appears on page
1084. Contract, dated October 1, 1942, between the United States of America and Standard Oil Co. of California, for operation of petroleum products pipe lines from Skagway, Alaska to Whitehorse, Canada-----	9331	9719
1085-A. Contract, dated May 25, 1942, between the United States of America and Standard Oil Co. of California, for consulting service and facilities in connection with Norman-Whitehorse pipe line-----	9331	9744
1085-B. Supplemental contract, dated November 20, 1942, between United States of America and Standard Oil Co. of California, to consulting services and facilities contract dated May 25, 1942-----	9331	9753
1085-C. Change order, dated May 15, 1943, between the United States of America and Standard Oil Co. of California, to consulting services contract dated May 25, 1942-----	9331	9762
1085-D. Supplemental agreement, dated July 15, 1943, between United States of America and Standard Oil Co. of California, to consulting services contract dated May 25, 1942-----	9331	9763
1085-E. Contract, dated July 1, 1943, between United States of America and Standard Oil Co. of California, for the operation of an oil pipe line from Norman, Alaska, to Whitehorse, Canada, and an oil refinery at Whitehorse-----	9331	9765
1086. Letter, dated June 24, 1943, from Harold L. Ickes, Petroleum Administrator for War to Admiral William D. Leahy, Chief of Staff, to the Commander in Chief, United States Army and Navy, re measures being taken to prevent threatened shortage in supply of petroleum products in 1944-----	9341	9789
1087. Contract, dated May 1, 1942, between United States of America and Imperial Oil Co., Ltd., for drilling and operating oil wells, including purchase of oil and other petroleum products by Government in Canada-----	9345	9790
1088. Contract, dated September 25, 1942, between United States of America and Noble Drilling Corporation, for construction of: wildcatting and production oil wells-----	9347	9808
1089. International agreements—communications between United States Government and Dominion of Canada, covering the Alcan Highway and the Canol project-----	9348	9827
1090. International agreements—notes exchanged between the United States Minister to Canada and the Canadian Secretary for External Affairs concerning the Canol project-----	9351	9830
1091. Report of the Bureau of Budget on Canol project-----	9358	(1)
1092. Correspondence, dated May 1942, from Henry L. Stimson, Secretary of War, to Standard Oil Co. of California, re services of Standard Oil in developing pipe line and refinery-----	9359	9837
1093. Letter, dated December 1, 1943, from Lt. Col. Herbert A. Friedlich, Judge Advocate General's Department, to Hugh Fulton, chief counsel to the committee, enclosing cost data, Canol project, as of November 29, 1943-----	9361	9840

¹ On file with the committee.

Number and summary of exhibits	Introduced at page	Appears on page
1094. Letter, dated November 18, 1943, from Lt. Col. Herbert A. Friedlich, Judge Advocate General's Department, to Rudolph Halley, executive assistant to the chief counsel for the committee, re Bechtel-Price-Callahan office building in Edmonton-----	9373	9842
1095. Memorandum, dated April 29, 1942, by J. H. Graham, for commanding general, Services of Supply, re extensions for fuel supply, Air Corps, in Canada and Alaska. approved April 29, 1942 by Lt. Gen. Brehon Somervell-----	9374	9842
1096. Directive, dated April 30, 1942, by Lt. Gen. Brehon Somervell for Chief of Engineers re extensions for fuel supply, Air Corps, in Canada and Alaska-----	9374	9843
1097. Memorandum re conferences April 29 and 30, 1942, concerning development of oil facilities in Alaska-----	9375	9843
1098. Report, dated April 15, 1942, by Vilhjalmur Stefansson re local oil supply, Yukon, Alaska, and Bering Sea-----	9378	9846
1099. Report, dated October 3, 1942, by Glen M. Ruby, on petroleum production and future possibilities of the Mackenzie River district, Northwest Territory, Canada-----	9378	9849
1100. Map, prepared by Engineer Corps, United States Army, of Alaska, Yukon, Northwest Territory, British Columbia, and Alberta-----	9409	faces p. 9855
1101. Letter, dated May 2, 1942, from R. V. LeSeuer, Imperial Oil, Ltd., to Brig. Gen. A. H. Carter, re extension of fuel supply Air Corps, in Canada and Alaska-----	9420	9855
1102. File of Brig. Gen. A. H. Carter concerning development of oil facilities in Alaska-----	9424	9857- 9861 (1)
1103. Report of the Quartermaster on Canol project-----	9517	
1104. Memorandum, dated November 19, 1943, by Brig. Gen. H. L. Peckham for Lt. Col. Herbert A. Friedlich, office of Under Secretary of War, re Canol project-----	9526	9526
1105. Letter, dated May 27, 1942, from Robert P. Patterson, Under Secretary of War, to Harold L. Ickes, Secretary of Interior, re Norman-Whitehorse pipe line-----	9532	(1)
1106. Letter, dated June 3, 1942, from Harold L. Ickes, Petroleum Coordinator for War, to Henry L. Stimson, Secretary of War, regretting fact that War Department did not consult Office of Petroleum Coordinator before authorization of Canol project-----	9532	(1)
1107. Letter, dated June 10, 1942, from Robert Patterson, Acting Secretary of War, to Harold L. Ickes, Petroleum Coordinator for War, expressing regret that War Department did not consult Office of Petroleum Coordinator before authorization of Canol project-----	9532	(1)
1108. Letter, dated June 22, 1942, Harold L. Ickes, Petroleum Coordinator for War, to Henry Stimson, Secretary of War, re operating hazards of pipe line-----	9532	(1)
1109. Letter, dated July 7, 1942, from Henry Stimson, Secretary of War, to Harold L. Ickes, Petroleum Coordinator for War, re War Department adoption of Petroleum Coordinator for War suggestion for supplementary facilities via Skagway-----	9532	(1)
1110. Letter, dated July 20, 1942, from Harold L. Ickes, Petroleum Coordinator for War, to Henry Stimson, Secretary of War, offering further recommendations and services of a petroleum engineer-----	9532	(1)
1111. Letter, dated July 31, 1942, from Henry Stimson, Secretary of War, to Harold L. Ickes, Petroleum Coordinator for War, accepting offer of Petroleum Coordinator for War to send an engineer to project-----	9532	(1)

¹ On file with the committee.

Number and summary of exhibits	Introduced at page	Appears on page
1112. Letter, dated August 15, 1942, from Ralph K. Davies, Deputy Petroleum Coordinator for War, to Henry Stimson, recommending services of Glenn F. Ruby, former chief geologist, Hudson Bay Co., as consulting engineer-----	9532	(1)
1113. Letter, dated September 5, 1942, from Robert P. Patterson, Acting Secretary of War, to Harold L. Ickes, Petroleum Coordinator for War, advising that War Department was proceeding with work on pipe line and refinery-----	9532	(1)
1114. Letter, dated September 28, 1942, from Harold L. Ickes, Petroleum Coordinator for War, to Henry Stimson, recommending that work on pipe line and refinery be suspended pending report of engineer-----	9532	(1)
1115. Letter, dated October 12, 1942, from Henry Stimson to Harold L. Ickes, Petroleum Coordinator for War, stating that work on pipe line and refinery was of a preparatory character and if necessary could be abandoned with little loss-----	9532	(1)
1116. Letter, dated October 29, 1942, from Harold L. Ickes, Petroleum Coordinator for War, to Henry Stimson, Secretary of War, transmitting Glenn Ruby's report which caused Petroleum Coordinator to conclude that the pipe line and refinery were not justifiable-----	9532	(1)
1117. Letter, dated November 12, 1942, from Henry Stimson, Secretary of War, to Harold L. Ickes, Petroleum Coordinator for War, acknowledging receipt of Ruby report....	9532	(1)
1118. Letter, dated November 13, 1942, from Harold L. Ickes, Petroleum Coordinator for War, to Henry Stimson, Secretary of War, protesting War Department's neglect to consult with Petroleum Coordinator for War on various projects-----	9532	(1)
1119. Letter, dated December 9, 1942, from Robert P. Patterson, Acting Secretary of War, to Harold L. Ickes, Petroleum Coordinator for War, commenting on Ruby report-----	9532	(1)
1120. Letter, dated December 9, 1942, from Harold L. Ickes, Petroleum Coordinator for War, to Henry Stimson, Secretary of War, discussing desirability for cooperation between Office of Petroleum Coordinator for War and the War Department-----	9532	(1)
1120-A. Letter, dated January 20, 1943, from Henry Stimson to Harold L. Ickes, justifying action of War Department in Canol project-----	9532	(1)
1121. Letter, dated March 24, 1943, from Harold D. Smith, Director, Bureau of the Budget, to Henry L. Stimson, Secretary of War, re Budget Bureau examination of Canol construction projects-----	9554	9861
1122. Letter, dated April 9, 1943, from Harold D. Smith, Director, Bureau of the Budget, to Henry L. Stimson, Secretary of War, re War Department assistance to Budget Bureau investigators of Canol project-----	9554	9862
1123. Letter, dated June 2, 1943, from Wayne Coy, Assistant Director, Bureau of the Budget, to Henry Stimson, Secretary of War, re report of Budget Bureau investigation of Canol project-----	9554	9862
1124. Letter, dated June 19, 1943, from Harold L. Ickes, Petroleum Administrator for War, to Wayne Coy, Assistant Director, Bureau of the Budget, re Canol project-----	9554	9863
1125. Letter, dated July 27, 1943, from Robert P. Patterson, Acting Secretary of War, to Harold D. Smith, Director, Bureau of the Budget, re necessity for completion of Canol project-----	9554	9865

¹ On file with the committee.

Number and summary of exhibits	Introduced at page	Appears on page
1126. Letter, dated August 10, 1943, from Harold D. Smith, Director, Bureau of the Budget, to Henry Stimson, Secretary of War, re submitting Canol project data to Chairman, War Production Board, and Petroleum Administrator for War-----	9554	9866
1127. Letter, dated September 20, 1943, from Harold L. Ickes, Petroleum Administrator for War, to Harold D. Smith, Director, Bureau of the Budget, suggesting a meeting between representatives of Bureau of the Budget, War Department, and Petroleum Administration for War re Canol project-----	9554	9866
1128. Letter, dated October 13, 1943, from Wayne Coy, Assistant Director, Bureau of the Budget, to Harold L. Ickes, Petroleum Administrator for War, re deferring meeting between representatives of Bureau of the Budget, War Department, and Petroleum Administration for War until Joint Army and Navy Board on Procurement investigate and report on Canol project-----	9554	9867
1129. Reports of inspection, April 13-24, 1943, by Charles D. Curran, principal budget examiner, on Alcan Highway and Canol projects-----	9561	9867
1130. Report, dated January 11, 1943, of the War Production Board, on the operations of the Facilities Bureau, War Production Board-----	9563	(1)
1131. Minutes of the forty-sixth meeting of the War Production Board, January 12, 1943-----	9563	(1)
1132. Letter, dated December 16, 1942, from Fred Searls, Jr., Chairman Facilities Board, War Production Board, to Under Secretary of War, Under Secretary of Navy, Chairman, United States Maritime Commission, and Program Vice Chairman of War Production Board, re facilities for Alcan Highway and Canol projects-----	9563	9873
1133. Letter, dated January 3, 1943, from Fred Searls, Jr., Chairman, Facilities Board, War Production Board, to Under Secretary of War, Under Secretary of Navy, Chairman, United States Maritime Commission, and Program Vice Chairman, War Production Board, re facilities for Canol and Alcan Highway projects-----	9566	9875
1134. Letter, dated December 19, 1942, from Robert P. Patterson, Under Secretary of War, to Fred Searls, Jr., Chairman, Facilities Board, War Production Board, re strategic necessity for Alcan Highway and Canol projects-----	9566	9877
1135. Letter, dated January 14, 1943, from Robert P. Patterson, Under Secretary of War, to Fred Searls, Jr., Chairman, Facilities Board, War Production Board, reviewing necessity for Alcan Highway and Canol projects-----	9566	9877
1136. Letter, dated January 15, 1943, from Fred Searls, Jr., Chairman, Facilities Board, War Production Board, to Robert P. Patterson, Under Secretary of War, closing matter of facilities for Alcan Highway and Canol projects-----	9566	9879
1137. Memorandum, dated March 29, 1943, from H. LeRoy Whitney, technical consultant, War Production Board, to Donald M. Nelson, Chairman, War Production Board, re Alcan Highway and Canol project-----	9569	9879
1138. Letter, dated February 28, 1943, from Col. Theodore Wyman, Jr., division engineer, Corps of Engineers, to H. W. E. Riley, Chief, Edmonton Section, Canadian Division, War Production Board, re procurement of materials for Canol and Alcan Highway project-----	9569	9884

¹ On file with the committee.

Number and summary of exhibits	Introduced at page	Appears on page
1139. Memo. dated March 22, 1943, from H. W. E. Riley to H. LeRoy Whitney, technical consultant, War Production Board, re United States Military and Public Roads Administration operations in northwest Canada and Alaska.....	9569	9885
1140. Stenographic notes of conversation with H. W. E. Riley, Chief, Edmonton Section, Canadian Division, War Production Board, March 22, 1943, re centralization of authority.....	9569	9888
1141. Letter, dated June 4, 1942, from J. L. Hanna, Standard Oil Co. of California, to Henry L. Stimson, Secretary of War, re Standard's preliminary studies as consultants to United States on Canol project.....	9621	9889
1142. Letter, dated April 1, 1943, from J. L. Hanna, Standard Oil Co. of California, to R. W. Coghill, petroleum consultant, Bureau of the Budget, presenting review of Standard's participation in Canol project.....	9622	9890
1143. Article by Harold L. Ickes, Petroleum Administrator for War, in American magazine, January 1944.....	9667	9666
1144. Article by Harold L. Ickes, Petroleum Administrator for War, in Collier's magazine, December 4, 1943.....	9607	9667
1145. Letter contract, dated May 1, 1942, between United States of America and Imperial Oil, Ltd., for drilling of wells within the Norman area.....	9671	9893
1146-A. Supplemental agreement, dated November 24, 1942, between United States of America and Imperial Oil, Ltd., re drilling of wells within Norman area.....	9671	9895
1146-B. Supplemental agreement, dated July 15, 1943, between United States of America and Imperial Oil, Ltd., re drilling and operating oil wells.....	9671	9898
1147. Memo, dated July 6, 1943, by Lt. Gen. Brehon Somervell for Chief of Staff, re report on Canol project.....	9676	9900
1148. Order of Lt. Gen. Brehon Somervell to staff curtailing writing of lengthy studies.....	9678	9678
1149. Memo, dated March 29, 1943, by Maj. Gen. Thomas T. Handy, Assistant Chief of Staff for Deputy Chief of Staff re troop requirements for Northwest Service Command.....	9684	9906
1150. Letter, dated January 4, 1944, from Julius H. Amberg, special assistant to Secretary of War, to Hugh Fulton, chief counsel for the committee, submitting certain additional information requested of Gen. Brehon Somervell.....	9690	9908
1151. Letter, dated December 18, 1943, from Capt. John A. Kennedy, United States Naval Reserve, to Hugh Fulton, chief counsel for the committee, stating Navy was never consulted re Canol project.....	9716	9911
SUPPLEMENTAL DATA		
Unnumbered. Letter, dated November 6, 1943, from Lt. Col. Herbert A. Friedlich, Judge Advocate General's Department, to Rudolph Halley, executive assistant to chief counsel for the committee, concerning cost of drilling wells for Canol project.....		9912
Unnumbered. Letter, dated November 24, 1943, from Robert P. Patterson, Under Secretary of War, to Senator Harry S. Truman, re recommendations of Joint Chiefs of Staff on Canol project.....		9912
Unnumbered. Letter, dated December 6, 1943, from Ralph K. Davies, Deputy Petroleum Administrator for War, to Harry S. Truman, submitting estimated cost of transportation to and the storing of petroleum products at Skagway, Alaska, and Whitehorse, Canada, as an alternative to the construction of crude-oil pipe line from Norman Wells and the refinery at Whitehorse.....		9913

Number and summary of exhibits	Introduced at page	Appears on page
SUPPLEMENTAL DATA—continued		
Unnumbered. Letter, dated December 23, 1943, from Henry L. Stimson, Secretary of War, to Harry S. Truman, re decision not to abandon Canol project-----		9915
Unnumbered. Letter, dated January 7, 1944, from Lt. Col. Herbert A. Friedlich, Judge Advocate General's Department, to Hugh Fulton, chief counsel for the committee, re estimates of cost of increasing capacity of Canol project-----		9916
Unnumbered. Copy of teletype dated November 24, 1943, from northwest division to Office of Chief of Engineers, transmitting cost estimates for different expansions to Canol project-----		9916
Unnumbered. Letter, dated April 22, 1944, from Julius Amberg, special assistant to the Secretary of War, to Hugh Fulton, chief counsel for the committee, re current operations and cost of production of Canol project-----		9918
Unnumbered. Press release, War Department, Bureau of Public Relations, Press Branch, re background on the Canol project-----		9918
Unnumbered. Letter of intent, dated April 11, 1944, between United States of America and Imperial Oil, Ltd, amending and terminating certain prior contracts-----		9921
Unnumbered. Letter, dated June 7, 1944, from Julius Amberg, special assistant to the Secretary of War, to Hugh Fulton, chief counsel for the committee, re pending appropriations for Canol project for fiscal year 1945-----		9924
Unnumbered. Memo, dated June 7, 1944, by Maj. Gen. George J. Richards, Director, Budget Division, General Staff Corps, for Julius H. Amberg, special assistant to the Secretary of War, submitting Budget estimates for Corps of Engineers covering fiscal year 1945, for Canol project-----		9924
Unnumbered. Letter, dated June 9, 1944, from Hugh Fulton, chief counsel for the committee, to Julius Amberg, special assistant to the Secretary of War, requesting further cost data and estimates of production for Canol projects and questioning "secrecy" of budgetary estimates-----		9925
Unnumbered. Letter, dated June 14, 1944, from Julius H. Amberg, special assistant to the Secretary of War, to Hugh Fulton, chief counsel for the committee, explaining "secrecy" of budgetary estimates-----		9925
Unnumbered. Letter, dated June 14, 1944, from Julius H. Amberg, special assistant to the Secretary of War, to Hugh Fulton, chief counsel for the committee, submitting further cost data and production estimates for Canol project-----		9926
Unnumbered. Letter, dated June 20, 1944, from Julius H. Amberg, special assistant to the Secretary of War, to Hugh Fulton, chief counsel for the committee, submitting cost data, for shipping oil products to Skagway from Caribbean area-----		9927
Unnumbered. Letter, dated June 20, 1944, from Julius H. Amberg, special assistant to the Secretary of War, to Hugh Fulton, chief counsel for the committee, submitting cost data for shipping oil products from west-coast ports to Skagway-----		9928

Number and summary of exhibits	Intro- duced at page	Appear on page
SUPPLEMENTAL DATA—continued		
Unnumbered. Tabulation of costs, computed from figures supplied by War Department, of Canol project products versus west-coast and Caribbean area products.....		9929
Unnumbered. Letter, dated June 17, 1944, from Hugh Fulton, chief counsel for the committee, to Harold L. Ickes, Petroleum Administrator for War, requesting information re west coast tanker situation and comparative costs of Canol project products and west-coast products.....		9929
Unnumbered. Letter, dated June 23, 1944, from Ralph K. Davies, Deputy Petroleum Administrator for War, to Hugh Fulton, chief counsel for the committee, submitting information on tanker situation, prices and freight rates.....		9929
Unnumbered. Speech, June 21, 1944, by Senator Homer Ferguson, to the United States Senate, re pending appropriation for Canol project for fiscal year 1945.....		9930

INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

SATURDAY, SEPTEMBER 11, 1943

UNITED STATES SENATE,
SURCOMMITTEE OF THE SPECIAL COMMITTEE
INVESTIGATING THE NATIONAL DEFENSE PROGRAM,
Whitehorse, Yukon Territory, Canada.

EXECUTIVE SESSION¹

The subcommittee met at 10 a. m., Saturday, September 11, 1943, Senator Harley M. Kilgore presiding.

Present: Senators Harvey M. Kilgore (Chairman); Homer Ferguson.

Present also: Rudolph Halley, executive assistant to the chief counsel; Brig. Gen. Frank E. Lowe, executive officer for the committee; Col. M. H. Knowles, Office of the Under Secretary of War; Commander W. John Kennedy, Office of the Secretary of the Navy, Office of Vice Chief of Naval Operations (Col. Knowles and Commander Kennedy acting as liaison to the Committee); Capt. Richard Neuberger, aide to General O'Connor; Commander David L. Patton, Bureau of Operations, United States Navy.

Mr. HALLEY. Colonel Knowles, will you please state what witnesses are present and available here?

Colonel KNOWLES. This is Lt. Col. Miles H. Knowles, of the Office of the Under Secretary of War. At the request of Mr. Halley, I have arranged for the following witnesses to appear before the subcommittee of the Truman committee: Gen. J. A. O'Connor, commanding general of the Northwest Service Command; Brig. Gen. L. D. Worsham, Division Engineer of the Northwest Division; also, Col. J. B. Johnston, district engineer, Whitehorse; Capt. Walter Parsons, area engineer, Whitehorse Refinery; Mr. Brady, superintendent of construction, Whitehorse Refinery for B. P. C.; and Mr. Stottart, assistant division engineer, Whitehorse Refinery, for P. R. A.

I also endeavored to obtain the following witnesses: Mr. H. W. E. Riley, who was in Vancouver and may be on his way to the hearing at the present time; also the following persons who were located at Norman Wells and Tanana: Paul Lambright, Colonel Rogers, Captain Westling, and Paul Grafe. We have no information as to whether or not they were able to secure a plane out of Norman Wells to arrive here for this hearing.

Senator FERGUSON. Now, would you state when they were requested?

¹ Publication authorized by the chairman, January 15, 1944.

Colonel KNOWLES. They were requested by radiogram on September 9. The radiogram was acknowledged.

Mr. HALLEY. May the record show that the committee just received a telegram from Mr. Lambright from Norman Wells inviting the committee to visit Norman Wells? The telegram makes no mention of any plan by Mr. Lambright to come to Whitehorse. I suggest we get the two generals in to give us the over-all picture first.

Senator FERGUSON. Do you want General O'Connor first?

Mr. HALLEY. Why not let them both come in?

(The witnesses were sworn.)

TESTIMONY OF GEN. J. F. O'CONNOR, COMMANDING GENERAL OF THE NORTHWEST SERVICE COMMAND, AND BRIG. GEN. L. D. WORSHAM, DIVISION ENGINEER OF THE NORTHWEST DIVISION

THE ALASKA HIGHWAY PROJECT

Mr. HALLEY. General O'Connor, could you give the committee the over-all picture of the scope of the Alcan Highway and the various Canol projects, taking first the Alcan and then the Canol projects one after another?

General O'CONNOR. The Alcan project, Alaska Highway project, was initiated as a result of an agreement between the United States and Canada for the purpose of constructing a road along the line of the airfields from Edmonton to Fairbanks, or from Dawson Creek, B. C., rather, to Fairbanks.

Senator KILGORE. Now, General, will you give distances on that, from the starting point of the Alcan Highway to the terminus, the distances between the principal points?

General O'CONNOR. The distance from Dawson Creek, British Columbia, to Fairbanks is approximately 1,600 miles.

Senator KILGORE. With what does the highway connect at Dawson Creek?

General O'CONNOR. To the end of the railroad.

Senator FERGUSON. That is the Canadian Pacific Railway?

General O'CONNOR. That is the National Alberta Railway—Northern Alberta.

Senator FERGUSON. Northern Alberta Railway?

General O'CONNOR. Northern Alberta.

Senator FERGUSON. The idea there being to pick up freight from that railway and carry it north along the line of flying fields to Fairbanks. Is there any part north of Fairbanks it reaches?

General O'CONNOR. No; it stops at Fairbanks.

Senator FERGUSON. And that total distance from Dawson Creek to Fairbanks is 1,600 miles?

General O'CONNOR. Approximately 1,600 miles.

Senator KILGORE. Road distance?

General O'CONNOR. Road distance.

Senator FERGUSON. What was the original plan with reference to construction of that road as to the type of road to be constructed?

General O'CONNOR. It was thought at first in the States that it would be possible to make a trail, just knock down the trees and make a very elemental road, and using that road to get working forces in

to construct an all-weather road. Due to the distances, the character of the ground, wet ground particularly, that was not practicable, so that we had to build a fairly substantial road in order to supply our forces along the highway. The net result was that the final road is an improvement on that initial road.

Senator FERGUSON. General, you say to supply our forces along the highway.

General O'CONNOR. Our road construction forces.

Senator FERGUSON. Not the airfields?

General O'CONNOR. The initial road was to supply the road construction forces and, incidentally, to give what help we could to supply the air fields, because we supplied them the moment the road was open, or that we could get any traffic into the airfields by road.

Senator KILGORE. The initial construction of these fields, however, was handled out of Valdez, Skagway, and Anchorage, was it not, as far as the material was concerned?

General O'CONNOR. The St. John field was handled by the Canadians out of Dawson Creek over a road from Dawson Creek to Fort St. John.

Senator FERGUSON. Why did you say the Canadians? How many ports did they build, how many airports did the Canadians build?

General O'CONNOR. They have built them all in Canada.

Senator FERGUSON. In Canada.

General O'CONNOR. We have supplemented their work by doing additional construction that our people needed in the movement of planes that we are sending over the line.

Senator FERGUSON. Take, for instance, this port here at Whitehorse. What did the Canadians do and what did we do?

General O'CONNOR. The Canadians have done everything up to July; during July we have started the construction of hangars and housing for our own forces, the additional runways that are required for the additional load to be put on them.

Senator FERGUSON. How many runways did the Canadians put on?

General O'CONNOR. The Canadians had one runway?

Senator FERGUSON. How many are on now?

General O'CONNOR. Two.

Senator FERGUSON. And have you a third in construction?

General O'CONNOR. A third is in construction; two runways and a taxi strip.

Senator FERGUSON. We are building, in other words, a taxi strip and one runway.

General O'CONNOR. Yes; that is right.

Senator FERGUSON. What would you say about St. John's and Grande Prairie and Edmonton?

General WORSHAM. I would like to call the committee's attention to the fact that the construction of airfields and the progress of construction is secret and should be treated as a military secret.

Senator FERGUSON. You mean, General, as to what the Canadians did and what we did?

General WORSHAM. I don't know what the cost of the work done by the Canadians is, so I can't give you—

Senator FERGUSON (interposing). The percentage in dollars.

General WORSHAM. It varies at each field. At Grande Prairie we are putting up a hangar and some warehouses.

Senator FERGUSON. Have the Canadians built any hangars?

General WORSHAM. No, sir; nothing except nose hangars.

Senator FERGUSON. On what field did they construct nose hangars?

General WORSHAM. They have nose hangars on all fields, and the Americans have nose hangars on some of the fields. Ordinarily the American forces operate on one side of the field and the R. C. A. F. and the Canadian commercial planes on the other side of the field, wherever that is practicable. For instance, at Whitehorse, the American forces and the Canadian forces are separate.

Senator FERGUSON. If a field is paved or macadamed or asphalted, who does that work?

General WORSHAM. The Canadians built their field first with what we call road mix asphalt, and the design criteria was lower than is required for the weight of planes which we are now building. The expansion program is for design of 70,000-pound wheel load, and that is what we are doing.

Senator FERGUSON. That is the United States part of the program?

General WORSHAM. The United States; yes, sir.

Senator FERGUSON. Does that apply to all runways?

General WORSHAM. All runways which we are building.

Senator FERGUSON. Will it apply to the ones erected by the Canadians?

General WORSHAM. I don't know that they are going to erect any more.

Senator FERGUSON. But those that have been erected?

General WORSHAM. No, sir; it does not.

Senator KILGORE. General O'Connor, to date about what percentage of the matériel used in the operation of planes and in the construction of fields has been transported over the highway? If you want at any time to suggest anything to General O'Connor, it is perfectly all right, General Worsham.

General WORSHAM. All of the material which we are using and have used in our construction at the airfield is hauled over at least part of the highway. We have different points of access to these fields. That should be remembered. For Whitehorse it comes in at Skagway and is hauled up over the railroad. That goes to Watson Lake comes over the railroad and is then hauled over the road to Watson Lake. That at Fort Nelson and Fort John comes by rail to Dawson Creek and then is hauled over the highway. That for the three fields in Alaska comes in through Valdez and is hauled up over the Richardson Highway to the Alaskan Highway and then hauled to the fields.

Senator KILGORE. General, one thing I wanted to get in. I noted coming down yesterday on the plane three or possibly four river crossings that looked to me to be pretty bad projects to get a road over that would stand up through the spring floods. Can the fields be serviced with just a trail across those rivers?

General WORSHAM. Well, it is more than a trail. From the air it may look like a trail, but it was a temporary bridge. At all the big rivers we contemplate putting in permanent bridges. The footings are placed now. Some of the steel is at Valdez and some is en route to Valdez.

Senator KILGORE. How wide are those rivers?

General WORSHAM. They vary in width. Of those that you saw yesterday, the widest one is probably five or six hundred feet, that is the bridge structure. At certain times in the year and from now until the spring rises there will be very little water.

Senator KILGORE. I noticed that. What I was getting at was how wide would that river spread out when the spring rise comes.

General WORSHAM. They vary in different streams. Do you know what width? I think Colonel Johnston can give us the approximate width of the three big streams. They are the Duke and the Donjek in the Whitehorse district and the Robertson and the Tanana and the White in the Fairbanks district.

Colonel JOHNSTON. In the Whitehorse district, the width of the Duke and the Donjek will be from 1,400 to 2,000 feet at flood time. I know nothing about the width of the rivers in Alaska. The width of the White at the location where it is expected the bridge will be built is some six or seven hundred feet.

Senator FERGUSON. Colonel, when coming down on the plane I noticed that the bridges were only covering part of the river bed. How do you propose to keep the other part of the road in?

Colonel JOHNSTON. The other part of the road will be a dike, a fill.

Senator KILGORE. Would that cause such a stoppage of the stream that it will make the stream hazardous?

Colonel JOHNSTON. That has been investigated and it is believed that the structures as planned will take care of the stream.

Senator KILGORE. Getting back to the point I was driving at in the supply of these fields, can they be supplied without the crossing of these rivers by using the ports of entry we are now using, such as Whittier, Skagway, Valdez, and Dawson?

General O'CONNOR. Those are glacial streams. Floods in them are rather rare. The big floods we expect in August. This year it was in July, due to the sun on the glacier, and rains melting glaciers. The delays that we expect on those high floods will come only occasionally, and we estimate that we can open up any of those bridges that are broken down within a week, and a week's delay in the supply of a field will not interfere with the supply of that field, because they will necessarily have a little stock on hand.

Senator KILGORE. I don't think I make myself clear. What I mean is this. Could we use the available facilities at Valdez, Skagway, Whittier, Fort Dawson, to supply these fields by fanning out in each direction from those points without the necessity of maintaining bridges across those rivers? In other words, could we isolate those into sectors between rivers?

General O'CONNOR. For instance, Fairbanks, Ladd Field, can be supplied by railroad from Seward or Whittier. We can supply Big Delta from Valdez, Tanacross, from Valdez. We can also supply Northway. However, between Tanacross and Northway we have two of those glacial streams that we will have to keep bridges on. In addition, on the railroad, the Alaska Defense Command estimate that when the route into Anchorage is frozen on November 15 they will need the full capacity of that railroad for the supply in the Anchorage region. There will be some supplies, particularly coal, that can be sent to Fairbanks, but there will not be a great excess. However, when the construction on these fields is finished, there shouldn't be too much of a load to take care of.

General WORSHAM. To answer, also, the road from Valdez to the Alaska Highway goes over what is called Thompson Pass, and it is expected that this will be closed by snow about October 15.

Senator FERGUSON. General, I would like to have your experience for this year since the thaws came in. What has happened to these streams and the temporary bridges and the temporary road or the permanent road that you have now erected in these streams? We are now in September and you have passed the spring floods at least. We are well into the fall one, and as I understand it, it freezes up here in October.

General O'CONNOR. We have had delays of several days, in a case or two 10 days, in crossing these streams. However, we had a large number of engineer troops up there who had opened the road in the first place and could replace those temporary bridges with fair facilities. With a very limited maintenance force that would not be practicable, and for that reason we are putting in permanent bridges.

Senator FERGUSON. Could you have used pontoon bridges such as the engineers use?

General O'CONNOR. No, sir, you could not.

Senator FERGUSON. Why?

General O'CONNOR. Several reasons. There is a very large amount of drift, and anything that blocks a stream, it washes out. Just like the Johnstown flood—it comes down like a wall.

Mr. HALLEY. General, do you and General Worsham have any of the responsibility for fixing the policy with respect to building the road, or is that effected elsewhere?

General O'CONNOR. We have nothing whatever to do with the policy. We simply carry out instructions that we receive from the War Department.

Mr. HALLEY. Are you familiar, however, with the purpose of the road as conceived by the War Department?

General O'CONNOR. Only from hearsay and my own estimate of the conditions, not directly. I was not concerned or consulted when the policies were set.

The CHAIRMAN. Have you any estimate on the cost of upkeep of a road such as we are building now?

General O'CONNOR. No. The upkeep will depend upon the amount of traffic that is put over it. We estimate that with a heavy maintenance next summer a man per mile will be ample and that will be reduced.

The CHAIRMAN. That would be a very small cost. A man per mile would be what cost?

General O'CONNOR. Oh, you've got to figure the man, his equipment, transportation.

General WORSHAM. We have set up a working estimate for the first year of \$15,000,000, and we hope to get by with certainly no more than that, and we hope less. Subsequent to that, the maintenance should drop at least 33½ percent.

Senator KILGORE. The road as now completed, with the addition of these bridges, would be a satisfactory military road, or is a lot of work being done here that would make of it what you might call a general purpose highway?

General O'CONNOR. The essential design for this road is a military road that will carry two-way traffic and up to 10-ton loads.

The CHAIRMAN. Will you repeat that again? I didn't catch the first part of your answer.

General O'CONNOR. This is a purely military road.

The CHAIRMAN. As now being constructed?

General O'CONNOR. As now being constructed.

The CHAIRMAN. You'd say the part from here to Macrae is purely a military road necessary to supply the airfields?

General O'CONNOR. I am talking about the full length of the road, the 1,600 miles. This stretch from here to Macrae is probably above the standard of the rest of the roads. In that place, however, there is expected to be a great deal of traffic over that road, more than on the other stretches of the road.

The CHAIRMAN. Isn't it true that the road was originally planned for 18 feet as a military highway?

General O'CONNOR. No, sir.

The CHAIRMAN. What was it planned for?

General WORSHAM. Initially the Public Roads Administration were to build a——

The CHAIRMAN (interposing). I am not speaking about Public Roads. I understand they came in and took it over from the military.

General WORSHAM. No, sir. As I understand it, the troops were to build a tote road and the P. R. A. were to follow with a road built according to forest and parks specifications of 1941, which was a 36-foot road, with gentle curves and gentle grades, and that was subsequently changed to build a road——

The CHAIRMAN (interposing). When you say specifications for '41, what month in '41?

General WORSHAM. I don't know, sir. You asked the month. I do not know the month. It is known as FP '41 specifications.

The CHAIRMAN. Was that before Pearl Harbor?

General WORSHAM. I don't know, sir. Whether or not the specifications were drawn before Pearl Harbor?

The CHAIRMAN. Yes.

General WORSHAM. I don't know, sir. However, the specifications were subsequently changed until now it calls for a 26-foot road from shoulder to shoulder with a 20- to 22-foot running strip, a maximum grade not to exceed 10 percent sight distances at curves to be determined on the ground so as not to be hazardous.

The CHAIRMAN. Are there any specifications as to the amount of gravel to be on top?

General WORSHAM. Yes, sir; there is. The specifications for gravel—we put in a base course, and the depth of the base course varies with the base material. Then where the base course is rough and big stones, we put selected material on that not to exceed 3 inches; in some places it is less than that.

Senator KILGORE. General Worsham, what I am trying to get at is this: Do the present specifications of the road exceed the specifications needed for actual military transportation, and no other, over this road? In other words, could a road be put in with lower specifications which would meet the military needs of our country in caring for these airfields and doing the job for which the road is designed? You know, Park specifications are designed for pleasure driving.

General WORSHAM. Yes, sir; that is why the specifications were lowered as they have been now. It must be remembered that we are not authorized to have engineer troops up here to maintain this road, and if you are fighting an offensive operation you are going to have to fight over a road of lesser degree, but without the troops to maintain the road we have got to have a road good enough so that we can get over it with a small amount of maintenance.

To answer your question directly enters into the broad field of military operations that makes it extremely difficult to give a categorical answer.

Mr. HALLEY. General O'Connor, could you give the committee your understanding of the military purpose of the road? That is, is the road being constructed to service a series of airfields between Edmonton and Fairbanks? Is it being constructed as a military highway to take troops and supplies in large quantities to some points? Does it have some other purposes? Could you give us that information?

General O'CONNOR. I would like to answer Senator Kilgore's question based on my experience up here in the last year and a half, and in my opinion this road is a purely military road and we couldn't get along effectively with less for the military purpose that at present is expected to be required of it.

Now, answering Mr. Halley's question, the primary purpose of this road was the airfields. The secondary purpose was to have an additional route to Alaska in case of difficulties in the Pacific. At the time this road was initiated, our fleet, of course, was knocked out and we had grave fears. Our sole aim in our construction here has been to give a road that would serve the military purpose and not have what we call up here a peacetime road. Now, we have had a little argument with the Public Roads Administration. That is a peacetime agency; they are very fine road builders. They looked into the question, anticipating a great deal of traffic and studying the question of repairs. Our point is that if we have a great deal of traffic over it we expect to have large maintenance forces; a small amount of traffic, smaller maintenance forces, which means we do not have to build anywhere near as high a standard of road for military purposes as the Public Roads Administration has to do for their purposes, what they have been building.

Senator KILGORE. In other words, this road initially was to service the airfield plus the furnishing of an alternative route in case the sea route up by way of Valdez and Anchorage and Seward were cut off.

General O'CONNOR. We were shy of shipping last year, too.

Senator KILGORE. And the shortage of shipping interfered, and over this road it was thought that material could be brought up and supplement the shortage of shipping or the attacks of the enemy which might cut off the sea route, and transship down over the railroads to these points, which condition, of course, doesn't exist now, but might conceivably exist in the future. What percentage of this road is in Alaska and what percentage is in Canada?

General O'CONNOR. Oh, about, let's see—we have got about 330 miles in Alaska, and we have about 1,250 miles in Canada.

Mr. HALLEY. General, taking first the alternate purpose of the road—that is, to supply possible troops into Alaska through the road—can you state the total number of troops and the total traffic in terms of

tons of freight which could be brought to any point of action, any present point of action or concentration in Alaska over the road?

General O'CONNOR. We can take a hundred thousand tons a month over—

Mr. HALLEY. Over the road?

General O'CONNOR. Yes.

Mr. HALLEY. How many trucks would that require?

General O'CONNOR. It depends on where you haul it from. If we haul it from Dawson Creek, my memory is 10,000 trucks.

Mr. HALLEY. To carry 100,000 tons a month?

General O'CONNOR. Yes. That is from Dawson Creek, understand. To bring it out from Whitehorse I think it will be 4,000 trucks.

Mr. HALLEY. But you would have to use shipping up along the Inland Passage.

General O'CONNOR. You would have to use shipping up the Inland Passage, which is approximately 100 miles from the sea in most places, except for those two points down near Vancouver Island, Victoria.

Mr. HALLEY. Have any military installations been planned in Alaska which would at the present time be serviced by the road and the road alone?

Senator FERGUSON. Other than the airfield at Fairbanks. I will add to that question, other than the airfield at Fairbanks, Ladd Field.

General O'CONNOR. You are getting into the realm of strategy. No, as far as I know. Last June, however, when the Japs attacked Dutch Harbor, some of us feel that if they had kept coming they would have had it and probably had Kodiak, and our only access into Alaska would have been by this road, the only way we could have gotten people from Anchorage out or we could have attacked the Japs in Alaska.

Mr. HALLEY. If the Japs had Dutch Harbor and Kodiak, what installations would the road service that would be of any use at all?

General O'CONNOR. Anchorage, Fairbanks, such airfields as we can hold in Alaska.

Mr. HALLEY. Is there a military installation other than the airfield at Fairbanks?

General O'CONNOR. No.

Mr. HALLEY. Is there any military installation except a camp for training recruits and a concentration point at Anchorage?

General O'CONNOR. Anchorage is fairly well prepared for defense and could—well, that is the answer.

Mr. HALLEY. Could you give us any idea of the extent of the defensive installations?

General O'CONNOR. No; I cannot. That is out of my bailiwick. That is in the Alaska Defense Command's. All I know is that flying over it they look to me to have made rather ample preparations to hold out there in case of necessity. That is just an individual opinion, however; I haven't studied it in detail.

Mr. HALLEY. Now, taking the third, which I understood was an alternate possibility for using the road, did I properly understand that the road was intended to relieve the shortage of shipping?

General O'CONNOR. You are dealing now in the policies, with which I had nothing to do, and I have nothing to do at the time. That is one of the assumptions that I made at the time because I happened to be at San Francisco with all that flurry and know the great shortage that

they had in getting ships to come up and do what work they did in Alaska.

Mr. HALLEY. Well, then, turning to the mechanics of building a road, rather than policy, would it not be true that up to this point, and probably for at least 6 months to a year in the future, the road will be a severe drain on shipping rather than an aid to our shipping problems?

General O'CONNOR. The road construction will be finished in a couple of months, and the only drain on the shipping will be moving these men and equipment out.

Mr. HALLEY. But up to this point, however, General O'Connor, has not the road been a drain on shipping?

General O'CONNOR. The materials for the road that came in through Whitehorse came up the Inland Passage by tug and barge essentially; some few ships were used, but generally ships that were not suitable for various reasons for going out to the Aleutians. As a matter of fact, any tug, any seagoing tug or ship that was available for Aleutian work was used on that work, and we had to use things that couldn't go over there.

Mr. HALLEY. Could you state what percentage of material for building roads was brought to the roads, or part of it brought to the roads, by shipping?

General O'CONNOR. All of it except the equipment and the men that went in through Valdez and the little bit that went over the railroad to the section in Alaska.

Mr. HALLEY. Well, even the part that went to Valdez was brought up to Valdez by ships, was it not?

General O'CONNOR. Yes. You understand, road material was obtained on the site, gravel, and all these things. We did bring equipment and men and supplies for the men by ship. That is one of the reasons that that section of the road has not progressed any further than it has. We have that little block at the present time, because we did not desire to put any more load on shipping equipment.

Mr. HALLEY. Now, General, turning to the primary purpose as we understand it, which is to supply the airfields, is it true that the fields were originally put in without the benefit of the road as finally conceived, that is, the road running from Edmonton to Fairbanks?

General O'CONNOR. That is right, yes; that is right.

Mr. HALLEY. The Canadians succeeded in putting in these airfields by taking existing routes.

General O'CONNOR. That is right.

Mr. HALLEY. Could you state the total tonnage of material which the Canadians brought to the airfields over existing routes and the period of time it took?

General O'CONNOR. No. They had very small fields, very ill equipped. If their fields would have taken the load, naturally we wouldn't have wanted to expand them.

Mr. HALLEY. Is it the policy of the War Department that a two-lane 26-foot road is required to service the airfields which lie between Edmonton and Fairbanks?

General O'CONNOR. I can't state the policy of the War Department.

Senator FERGUSON. General, isn't it true that many of these airfields are merely emergency fields in flying the planes to Russia?

General O'CONNOR. No.

Senator FERGUSON. What ones are one that they must land at?

General O'CONNOR. I would prefer having you ask the Air Corps that. However, I do know on account of weather here that the Watson Lake airfield will be filled up with planes at times, Nelson will be filled up, John will be filled up, going north and south.

Senator FERGUSON. But the plane goes in equipped. I doesn't need material, and it can take off with its own supplies that it received at Edmonton, can't it?

General O'CONNOR. The cargo a plane can carry depends on fuel. They have to have fueling stops. In the wintertime, once a plane gets down and gets frozen up it is quite a job to get it going.

Senator FERGUSON. But what supplies does it have to have in there to keep it going?

General O'CONNOR. Fuel.

Senator FERGUSON. It carries its fuel in, doesn't it? What I am trying to get at is that the planes we are now flying over this road, we are using these airports for, are planes that can carry supplies for how many miles, their own supplies?

General O'CONNOR. I am not qualified to give that.

Senator FERGUSON. The Air Corps would have to answer that?

General O'CONNOR. The Air Corps would have to give you that answer. I do know that they can make use of all these fields. I was up here last winter and saw them attempt to operate them. We had our same troubles in operating on the road, and, personally, they are trying to get just as much over those fields as they can with the facilities they have.

Mr. HALLEY. Can you state the distance between Whitehorse and Fairbanks?

General O'CONNOR. I can give you the road distance. The road distance is a little over 600 miles.

Mr. HALLEY. Can you give us the distance between Fairbanks and Nome?

General O'CONNOR. Fairbanks and Nome, the road distance is likewise about 650 miles.

Mr. HALLEY. Is it proposed to build a road from Fairbanks to Nome?

General O'CONNOR. No; we are not building any road west of Fairbanks at the present moment. We have received no directives and I don't anticipate any just now.

Mr. HALLEY. Well, what is expected to be made in the way of provisions for planes proceeding from Fairbanks to Nome in the course over the Bering Sea?

General O'CONNOR. That is something I would be only guessing at. I have my own opinions and have gotten certain information, but the data can best be obtained from the Air Corps who handle that.

Senator FERGUSON. What is the maximum of soldiers that you have had in here building on this road?

General O'CONNOR. We have 10,000 soldiers.

Senator FERGUSON. What is the maximum civilians that you have had in building this road?

General O'CONNOR. We have approximately 15,000 at the present time, which are ready to move out.

Senator FERGUSON. Ready to move out?

General O'CONNOR. Yes, sir; they are beginning to move out.

Senator FERGUSON. Will you require more military personnel, then?

General O'CONNOR. Not for the road. The military personnel we have and expect to have will be for the operation of the truck line and the servicing and furnishing of the Quartermaster supplies, fuel, construction, any traffic needed for the servicing of the airfields.

Senator FERGUSON. How much personnel will that mean?

General O'CONNOR. Ten thousand.

Senator FERGUSON. So we will have to have a permanent garrison here of at least 10,000 men?

General O'CONNOR. It depends on—at the present time we have 10,000 men with this construction project, and I wouldn't be a bit surprised to find that reduced materially by spring, depending on what conditions may happen next summer. It may be increased under certain conditions and seriously decreased in others. Colonel Gaffney at Edmonton is in charge.

Senator KILGORE. General, I don't know whether you know this or not. What is the actual tonnage this Skagway-Whitehorse railroad can haul in a train, based on its grades, curves, its engine power?

General O'CONNOR. Going up the first 20 miles, which is a $\frac{1}{4}$ percent grade, they haul trains of 12 cars of an average of, I would say, about 15 tons per car. Then 4 trains are combined at that point—48 cars combined and from that point run on in to—

Senator KILGORE. Forty-eight cars that come on in?

General O'CONNOR. Practically, something like that, 30 to 40 cars.

Senator KILGORE. I was told yesterday that they had run as many as 34 trains a day over that.

General O'CONNOR. That is correct.

Senator KILGORE. With those 48-car trains?

General O'CONNOR. Twelve-car trains.

Senator KILGORE. What is the tonnage capacity of the Anchorage-Fairbanks road?

General O'CONNOR. I can't give you that.

Senator KILGORE. They contend that it—

General O'CONNOR (interposing). That railroad had not been maintained, it had been let run down, in other words, so that it did not carry the traffic that the military required. However, it has been bolstered up with additional equipment, additional men, and additional work so that the capacity of the railroad has been increased, I understand.

Senator KILGORE. I understand that it would be about multiplied by six with the installation at Whittier?

General O'CONNOR. I don't know; but I assume that would be about the right answer.

General LOWE. I suggest the appropriateness of a discussion of the difference of gages between the Anchorage-Fairbanks road and the Skagway-Whitehorse road, in the availability of equipment.

Senator FERGUSON. General O'Connor, do you know the gage of the railroad from Anchorage to Fairbanks?

General O'CONNOR. Standard gage.

Senator FERGUSON. And the one from Skagway in here?

General O'CONNOR. Thirty-six.

Senator FERGUSON. Is there any other road connecting in here in any way?

General O'CONNOR. No.

Senator FERGUSON. This is a 36-inch and the other is 10?

General O'CONNOR. Yes, sir.

Senator FERGUSON. You have been able to get all the equipment you desire for this road second-hand from the States or from Canada?

General O'CONNOR. Yes, we have; and the meter gage equipment that they have built, some of it was shortened to 36-inch gage, some few engines, so that we have all the equipment that we require at the present time, either here or on its way here.

Senator FERGUSON. You don't anticipate any further requirements?

General O'CONNOR. No.

Senator FERGUSON. Because the supplying of these road materials and building materials has been in great amounts?

General O'CONNOR. That is right.

Senator FERGUSON. And it would take a great offensive here or a great defensive to save Alaska that would require more shipping than what you have had?

General O'CONNOR. I am not prepared to talk on that point.

Senator FERGUSON. Why? Military secret?

General O'CONNOR. No; it is too easy to go astray unless you have got some facts to go on.

Mr. HALLEY. Could you state, General, whether or not the traffic on both railroads as of today has been from the seaboard to the interior or from the interior to the seaboard?

General O'CONNOR. From the seaboard to the interior, essentially.

Senator KILGORE. That has been the case in time of peace also, hasn't it?

General O'CONNOR. Yes; practically.

OIL PRODUCTS DISTRIBUTION LINES

Mr. HALLEY. Could you describe just the Canol project, leaving out at this time the crude-oil project from Norman Wells to Whitehorse and the refinery project, but give the committee a description of the remainder of the project?

General O'CONNOR. It consists of a pipe line from Skagway to Whitehorse and then a pipe line—

Senator KILGORE (interposing). What size?

General O'CONNOR. Four-inch. Then a 2-inch pipe line that runs to Watson Lake. Then another pipe line that runs to Whitehorse, and a 3-inch pipe line from Whitehorse to Fairbanks.

Senator FERGUSON. Is that one from Norman Wells a 4-inch?

General O'CONNOR. The one from Norman Wells is a crude line, and that is especially a 4-inch line. However, there are about 140 miles on this end of the line 6-inch.

Senator FERGUSON. Can you state on the record why you put part 4-inch and part 6-inch?

General O'CONNOR. I cannot.

Mr. HALLEY. I'd like to explain the reason I tried to separate the two * * *.¹

Senator KILGORE. Let me ask you something else, General. Can those be reversed without changing pumping stations?

General WORSHAM. By changing * * *.¹

¹ Balance of this not in stenotype notes and inaudible on record.

Colonel KNOWLES. In respect to furnishing maps with all of this indicated, my advice from the War Department is secret information and will not be available for publishing a report.

Mr. HALLEY. We have never yet used for publication anything * * *¹

Senator KILGORE. I don't want a map, but it is a lot easier to see this way.

General LOWE. Let's stamp that secret and endorse it and it goes into the secret files of the committee.

Colonel KNOWLES. The custom has been, we have always delivered secret documents to a member of the committee and if a Senator wished to keep it he was responsible, but we have never assigned it to the committee personally, but to an individual.

General LOWE. Follow your usual scheme.

Mr. HALLEY. We have never had any problem.

Senator FERGUSON. Then we are ready to go ahead.

Mr. HALLEY. General, are the lines you have been discussing product lines?

General O'CONNOR. Yes.

Mr. HALLEY. And can you state the capacity in terms of barrels per day of each line?

General O'CONNOR. From Skagway to Whitehorse, 6,000 barrels; Whitehorse to Watson Lake, 800 barrels; Whitehorse to Fairbanks, 3,000 barrels.

Senator KILGORE. Now, General, that Carcross line is a cut-off from the Skagway-Whitehorse line, therefore that would reduce the capacity at Whitehorse by the amount pulled out at Carcross.

General O'CONNOR. Probably so. The amount you put through a line depends largely on the pressure you put in, the number of pumping stations you have, and that is subject to quite a little variation, but we expect to get those figures approximately. They are subject to—

Senator KILGORE. But you couldn't put the full capacity in at Whitehorse if you were pumping out at Carcross too.

General O'CONNOR. Well, no. It depends on the arrangements of your pumping stations. If we have our pumping stations so that we can carry a faster stream up to Carcross and * * *² this side so we can balance it. There are all kinds of angles to it.

Senator KILGORE. Yes. What I mean is that you can't use maximum pumping from Skagway to Whitehorse.

General O'CONNOR. That is right, that is right, correct.

Mr. HALLEY. Are the pumping stations on each of these lines reversible so that the lines could each be reversed? Is that the question you wanted?

General WORSHAM. If there is a change in the manifold connections that can be accomplished. Of course, the lines to Watson Lake and Fairbanks—they would never be reversed anyway.

Mr. HALLEY. But are they reversible?

General WORSHAM. I don't know about that. There would be no reason for reversing the line that goes from Whitehorse to Fairbanks and from Whitehorse to Watson Lake.

¹ Nothing in stenotype notes, and inaudible on the record.

² Indistinct on record; nothing in notes.

Senator KILGORE. General, they can be used for all sorts of petroleum products, can they not? In other words, they are so constructed that you can use them for petroleum and gasoline?

General WORSHAM. Put a slug between them? That, in general, is true. However, the Standard Oil of California does not recommend pumping Diesel fuel through the line, and fuel oil. You have to vary your program when you pump hundred-octane, then 91, then 87, then would come your Diesel, then you would have to waste the next hundred-octane; part of that would have to go to a lower grade.

Mr. HALLEY. Would it be possible in prevailing winter temperatures to pump anything but gasoline?

General WORSHAM. Yes, it would be possible.

Mr. HALLEY. Have any of the lines been working up to this point, and would you state how long each one that has been working has been in operation?

General O'CONNOR. The Skagway-Whitehorse line was put in operation January 20.

Senator FERGUSON. This year?

General O'CONNOR. This year. The Carcross line—June 1? I don't remember the date on that. The Watson Lake line about the middle of July of this year.

Mr. HALLEY. None of the others are in operation as yet?

General O'CONNOR. The line is being constructed to Fairbanks and gasoline has been pumped up to stations along the line for construction purposes to save hauling.

Senator FERGUSON. How much is completed on the Fairbanks route and then how much over to Norman Wells, if you can state that on the record?

General O'CONNOR. Maybe I can give a fair answer on it. In figuring the completion we have all the material, men, and in over 600 miles there are probably 200 miles yet to be welded.

Senator FERGUSON. That is on the Fairbanks line?

General O'CONNOR. Fairbanks line; that is just a broad estimate, subject to considerable variation. The point is that that line is going to be in operation by December 1, is it?

Senator KILGORE. That line runs from Whitehorse to Fairbanks?

General O'CONNOR. Fairbanks, yes, that is right.

Senator KILGORE. In other words, all these lines base now on Skagway, on tank shipment to Skagway. Is that right?

General O'CONNOR. That is correct.

Mr. HALLEY. How much storage do you now have at Skagway and at Whitehorse?

General O'CONNOR. If it is full, 150,000 barrels at Skagway and 240,000 barrels here.

Senator FERGUSON. Is it all full?

General O'CONNOR. At the present moment I would say no.

Senator FERGUSON. How much of it is filled?

General O'CONNOR. The last figures I saw, we had 80,000 barrels.

Mr. HALLEY. Up to this point, how have the airfields along the Alcan Highway been supplied with aviation gasoline?

General O'CONNOR. The field at Nelson has been supplied—before the road came in, you mean?

Mr. HALLEY. Right now.

General O'CONNOR. It is all supplied by roads. Nelson is supplied by roads. St. John is supplied by road. Watson Lake has been supplied by road but is now being supplied by pipe line. And the Northway, the Tanacross and Big Delta have been supplied by road. Big Delta had been supplied by road but the other station had been supplied by air before the road was opened. If you are interested in how they were supplied by other routes than air, I would be glad to tell you.

Senator KILGORE. Prior to the roads at Nelson and those other two points that are now being supplied by the road south, how were they supplied?

General O'CONNOR. At Nelson they were supplied by use of a winter road, by water line, barge line, that ran from waterways probably about 1,400 miles down the Mackenzie River, up the Liard River, and up the Nelson River. The custom there was to frequently have to take 2 years to take the trip instead of one on account of low water and carrying conditions. The sure way was to fly it in. The use of the winter road was quite a problem with the equipment they had at the time, and they tried to get as much as they could in by water. We got our fuel for the road building for Nelson west by water and had quite a job with it.

Senator KILGORE. How long did the water trip take?

General O'CONNOR. Fourteen hundred miles—I think they could bring it to the Liard River and make something like two trips a season; a month or two at least if everything went went.

Senator KILGORE. Any portages on that route?

General O'CONNOR. Yes; there is a portage from Fort Smith to Fort Fitzgerald, a 20-mile portage. They handled it on large boats and then they finally ended up in rather small barges of a particular type for shallow water coming up the Nelson River. It is quite a job. Watson Lake was also supplied by air from here and also by water from Wrangell up the Stikine River, a portage in the mountains, and then down the Dease River to Watson Lake. They could make two trips per season with their craft and the portage to Watson Lake because of the swiftness of the stream. Of course, that was for the small fields. I think they figured they could get in 600 tons a year that way.

Senator FERGUSON. General, if it wasn't for delivering planes to Russia at this time, would there be any need for any of these pipe lines and these airfields? I am talking about today.

General O'CONNOR. That kind of a question—it is policy on that sort of thing. I don't know what they are planning to do in the route by way of the Aleutians.

Mr. HALLEY. Can you state whether there is anticipated any increased traffic over the air lines from Whitehorse to Fairbanks?

General O'CONNOR. No; you might get that from Colonel Kitcherman. That is governed by orders and instructions from the War Department, and Russia, what Russia desires. Informally I understand they would like to have two times as many, that they could take care of two times as many planes as we are able to give them now.

Mr. HALLEY. In the absence of greatly increased traffic, would a pipe line be needed for the purpose of supplying aviation fuel to the fields between Fairbanks and Whitehorse but not including either Fairbanks or Whitehorse?

General O'CONNOR. What is the first part of that question, again?

Mr. HALLEY. In the absence of greatly increased air traffic, would a pipe line be needed to supply the fields between Fairbanks and Whitehorse but not including either Fairbanks or Whitehorse?

General O'CONNOR. They haven't a pipe line now and they are getting by by hauling on the road.

Senator KILGORE. Will the Fairbanks-Whitehorse line supply the intermediate fields between those two points by pumping?

General O'CONNOR. It will, that is right.

Senator KILGORE. And the fields north of Fairbanks will be supplied by hauling over the highway. How will the fields north of Fairbanks be supplied?

General O'CONNOR. The fields—say Galena, is supplied by barging down the Tanana and the Yukon River from Fairbanks to Galena, or you can come up by the Bering Sea, up the river.

Mr. HALLEY. General O'Connor and General Worsham, would you give the committee the over-all data on Canol No. 1, giving the refinery figures, the nature and capacity of the refinery, the nature and capacity of the pipe line between Whitehorse and Norman Wells, the activities at Norman Wells, and any exploratory activities being conducted out of Norman Wells, or in any way connected with the Canol development?

(Considerable discussion ensued with reference to secrecy of information, following which Senator Kilgore made the following ruling:)

Senator KILGORE. For the benefit of Colonel Knowles, I have considered this entire hearing as a secret hearing and believe that all matter here should be held as secret pending conversation with the War Department, as to what figures, if any, could be released if we should at any time desire to release figures.

(There was further discussion concerning disposition of the stenotype notes and electrical recordings, which was not transcribed, by instruction of Mr. Halley.)

Senator FERGUSON. We will take the records, take them back, submit them to the committee and have our own discussion with the War Department as to the disposition of the records thereafter, with accent on the word "usual."

(Lt. Col. Raymond F. Kitcherman, Air Corps, was sworn.)

Senator KILGORE. Will you state your full name?

Colonel KITCHERMAN. Raymond F. Kitcherman, lieutenant colonel, Air Corps.

Senator FERGUSON. What is your official capacity here in Canada or Alaska?

Colonel KITCHERMAN. At the present time I am commanding officer of the United States Army Air Forces at the base of Whitehorse.

Senator FERGUSON. Let the record show now that we adjourn for lunch at 12 o'clock.

(At 12 noon the committee recessed.)

AFTERNOON SESSION

(The hearing reconvened at 1 p. m.)

TESTIMONY OF LT. COL. RAYMOND F. KITCHERMAN, COMMANDING OFFICER, UNITED STATES ARMY AIR FORCES, WHITEHORSE, YUKON TERRITORY, CANADA

Senator KILGORE. What are the approximate distances between airfields in this Canadian run, one from Edmonton to Nome or Edmonton to the north?

Colonel KITCHERMAN. The principal airfields are approximately 250 miles apart. However, there are some emergency strips or emergency landing spots in between these principal fields.

Senator KILGORE. How much gasoline do these planes carry? In other words, how many fields can they hop in their normal run, running north? Must they take on gas at each field, or can they skip a number of fields?

Colonel KITCHERMAN. Our customary operating procedure, weather permitting, is to have two stops for ferried aircraft between Edmonton and Fairbanks. However, it is frequently necessary, because of weather, to vary this procedure.

Senator KILGORE. In which case you bank up planes at fields, waiting for weather conditions to open up. Is that right?

Colonel KITCHERMAN. That is true, sir.

Senator KILGORE. And if the weather closes up, you order the men to set down until they can get through. Is that right?

Colonel KITCHERMAN. That is true, sir.

Senator KILGORE. Is it the custom to have them carry plenty of gas at all times so they can fly out if necessary?

Colonel KITCHERMAN. It has been necessary in our operations in the north to follow the procedure we call "carrying our weather in our gas tank." In other words, it is necessary to carry more gas than we ordinarily would in routes in the States because of weather information being uncertain, and the carrying of additional gas gives us a factor of safety in operation.

Senator KILGORE. Does that apply to the fighters as well as to the bombers?

Colonel KITCHERMAN. That is true, sir.

Senator FERGUSON. What is the distance that you can fly with the average fighters here with the gas that you put aboard?

Colonel KITCHERMAN. The maximum range of a fighting aircraft with our ferrying tanks is approximately 1,500 miles.

Senator FERGUSON. And with the B-25, the bombers?

Colonel KITCHERMAN. It is at least 1,500 miles.

Senator FERGUSON. It is then possible to load gas at Edmonton and fly to Big Delta?

Colonel KITCHERMAN. Yes, sir; that is a possibility.

Mr. HALLEY. What are the present landing fields used for, regular landings of the small types of planes rather than the larger ones, flying between Edmonton and Fairbanks? Where are those required to land as a matter of routine procedure?

Colonel KITCHERMAN. Well, that is a difficult question to answer. I would say that the places we most frequently use are, first stop,

Nelson, that is, coming up the route from Edmonton; Nelson, Whitehorse, Fairbanks, is the customary routine.

Mr. HALLEY. Would you, then, say that the fields between Whitehorse and Fairbanks are emergency fields?

Colonel KITCHERMAN. No, sir; we call them alternate fields in that case.

Mr. HALLEY. However, even the smaller type of plane would not stop there except in the case of something unusual occurring. Is that right?

Colonel KITCHERMAN. No; that isn't quite right. We have other planes en route whose range is limited to 300 or 400 miles.

Mr. HALLEY. I am referring to the type of plane with the very lowest group range. Now, where would they stop, flying between Edmonton and Fairbanks?

Colonel KITCHERMAN. Starting from Edmonton, they would stop at Grande Prairie, Fort St. John, Nelson, Watson, Whitehorse, Northway, possibly Big Delta, then Fairbanks.

Senator FERGUSON. What kind of planes are those that you are talking about?

Colonel KITCHERMAN. We have types called AT-6, AT-7, other low-range craft.

Senator FERGUSON. What are they used for in this section?

Colonel KITCHERMAN. They are used as administrator planes to cover the route, they are used for carrying supplies to our own stations, our own detachments, and generally used for transporting personnel over short distances where we do not wish to stop our cargo aircraft or our larger aircraft.

Mr. HALLEY. What proportion of the planes flying the route would they constitute?

Colonel KITCHERMAN. Possibly 3 percent.

Mr. HALLEY. Now, with respect to fighter planes, transport planes, and bombers, is it necessary for any type of those classes to stop between this point and Fairbanks?

Colonel KITCHERMAN. Yes, sir; I would say it was decidedly necessary. We have found through our past year's operation that if we do not advance ferried aircraft, combat aircraft, by leaps and bounds when weather permits we could not successfully deliver the aircraft we are scheduled to deliver.

Mr. HALLEY. In other words, you do make short hops whenever possible.

Colonel KITCHERMAN. That is true. We advance even one station, if possible.

Mr. HALLEY. However, when the weather is clear, do you, as a general rule, fly all such planes right through?

Colonel KITCHERMAN. No, sir; we very rarely fly them right through. They make the scheduled two stops.

Mr. HALLEY. I mean, fly straight through from here to Fairbanks.

Colonel KITCHERMAN. That is true; they make Fairbanks without stopping.

Mr. HALLEY. Is it necessary for the fields between here and Fairbanks, therefore, to carry large supplies of gasoline?

Colonel KITCHERMAN. At one station that is necessary, that is the station at Northway. Frequently weather conditions do not permit landings at the Whitehorse station; in which case they pass up White-

horse and land at Northway; therefore, we consider Northway an important gassing point, and it would be necessary for them to maintain large levels of gasoline.

Mr. HALLEY. Up to this point, up to this date, rather, has it been necessary or have truck shipments of gasoline to Northway been unsatisfactory?

Colonel KITCHERMAN. Will you repeat that question?

Mr. HALLEY. Maybe I can put it differently. Up to this point, have deliveries of aviation gasoline to Northway been unsatisfactory?

Colonel KITCHERMAN. They were unsatisfactory during the period of last winter and last spring until we could get gasoline in there by road. It was necessary to fly gasoline into Northway at one time.

Mr. HALLEY. Is it necessary to fly it in now?

Colonel KITCHERMAN. I believe it is all being taken in by road now. I am not on that section of the route, however, and cannot speak as a qualified officer.

Mr. HALLEY. Is it possible by combining the road facilities and storage at Northway to provide for such contingencies as might arise during the course of the winter?

Colonel KITCHERMAN. Yes, sir; it would be possible.

Mr. HALLEY. Does the Air Corps feel that a pipe line would be necessary to supply the Northway Field with aviation gasoline?

Colonel KITCHERMAN. I am not qualified to speak for the Air Corps.

Mr. HALLEY. Do you have an opinion of your own which you care to put on the record?

Colonel KITCHERMAN. I would rather not.

Senator FERGUSON. You have nothing to do with the Norman Wells situation?

Colonel KITCHERMAN. No, sir; I haven't.

Mr. HALLEY. Thank you very much.

TESTIMONY OF GEN. J. A. O'CONNOR AND BRIG. GEN. L. D. WORSHAM—Resumed

Senator FERGUSON. General Worsham, are you familiar with the work being done now at Norman Wells?

General WORSHAM. Yes, sir.

Senator FERGUSON. Will you explain that to the committee, just what's being done?

General WORSHAM. At Camp Canol, which is on the left bank of the Mackenzie River, we are building a road and a pipe line westward. On the Norman Wells side we have had some geological parties and geophysical parties who have been making explorations during the summer, and we have well rigs which are moving in there now to make further exploration.

Senator FERGUSON. How far have you sought oil there; how far out from Norman Wells?

General WORSHAM. Most of it is between Fort Norman and Norman Wells, over a stretch of the river about 50 miles long.

Senator FERGUSON. Have you ever heard of their going a thousand miles to look for oil?

General WORSHAM. No, sir.

Senator FERGUSON. Do you think there is any truth in any such statement?

General WORSHAM. We have had no parties that have ranged that far.

Senator FERGUSON. How far would you say is the farthest that your parties have ranged?

General WORSHAM. I would say not further than 100 or 150 miles from Norman Wells.

Senator FERGUSON. One hundred fifty miles would be the distance?

General WORSHAM. And I don't believe that they have gone that far. However, we were, in our directive, permitted to cover a much greater area than that.

Senator FERGUSON. How much does the directive give you permission to do?

General WORSHAM. I am speaking now rather hazily because we have so many directives, but I think it is north of the sixty-sixth parallel and down the Mackenzie Valley.

Senator FERGUSON. How long a road are you building across the Mackenzie, on the other side of the Mackenzie?

General WORSHAM. On the other side of the Mackenzie?

Senator FERGUSON. You said you were building a road.

General WORSHAM. It is not on the other side of the Mackenzie; it is from the left bank of the Mackenzie, which is Camp Canol, toward Johnson Crossing, where it meets the Alaska Military Highway, and that distance is about 595 miles.

Senator FERGUSON. Is that to be a connecting link with the Alaskan Highway?

General WORSHAM. No, sir; this is a highway which we have to build in order to haul in our pipe and pumping stations and maintain the line after it is completed.

Senator FERGUSON. Well, is it a highway the pipe line?

General WORSHAM. The pipe line follows generally the highway, so I would rather just transpose that.

Senator FERGUSON. So that it is a highway solely for the purpose of the pipeline?

General WORSHAM. That is right, it is a construction road for the purpose of building and servicing the pipe line after it is completed.

Senator FERGUSON. How many wells have they now at Norman Wells?

General WORSHAM. There are 24, I think, which have been drilled.

Senator FERGUSON. Are they all producing?

General WORSHAM. There were seven that were drilled before we got in there and three of those were nonproducers. However, we have reached our construction directive on the production of the Norman Wells fields.

Senator FERGUSON. Now, of the seven wells—they were originally in there by the Dominion Oil Co.?

General WORSHAM. By the Imperial Oil Co.

Senator FERGUSON. By the Imperial Oil Co. Three of those were nonproductive?

General WORSHAM. That is as I recall it.

Senator FERGUSON. How many of your 14 have been productive?

General WORSHAM. As I recall it, we hit—you see we drilled—to make this picture a little clearer, we had to delineate the field to find what the limits of the field were.

Senator FERGUSON. Did you do that?

General WORSHAM. That is fairly well delineated now, yes, sir.

Senator FERGUSON. Then these scouting parties were to find other fields?

General WORSHAM. The geologists and geophysicists.

Senator FERGUSON. That is their purpose?

General WORSHAM. That is their purpose.

Senator FERGUSON. Have you drilled any other wells?

General WORSHAM. We drilled one on Hoosier Ridge. There was an outcropping of coral reef structure and there were several other structures which were of the same general nature, and had we hit oil there it would have opened up considerable territory that was close by.

Senator FERGUSON. I take it your answer means that at that particular well you didn't strike oil.

General WORSHAM. Hoosier Ridge was a dry hole. There are indications that there were outcroppings of old seepages and the geologists have not yet given up that oil may be found in that territory.

Senator FERGUSON. How far was this well from Norman Wells?

General WORSHAM. Hoosier Ridge is about—it is within 50 miles, probably about 35 miles.

Senator FERGUSON. Well, will the 24 wells today produce enough oil to keep the pipe line in use?

General WORSHAM. Yes, sir; more than enough.

Senator FERGUSON. Then as far as transportation is concerned, you don't need any more oil?

General WORSHAM. So far as transportation, that is correct.

Senator FERGUSON. What other means of transportation have you from Norman Wells to get here or into Fairbanks, oil, other than the pipe line?

General WORSHAM. The crude oil could be taken down the Mackenzie River or an additional pipe line would have to be built along the route that we are now constructing.

Senator FERGUSON. When you speak about "down the Mackenzie," how long would it take you to bring it down?

General WORSHAM. Well, let's see, I guess—

General O'CONNOR. It would be boat down to the mouth of the Mackenzie, then down around the Bering Sea and Bering Strait.

General WORSHAM. Just to answer that question "down the Mackenzie," I would say about a week.

Senator FERGUSON. You mean just to get it down to the mouth of the Mackenzie?

General WORSHAM. That is it. I would estimate about a week.

Senator FERGUSON. Then what would you do with it?

General WORSHAM. It would have to go through the Bering Sea and come down the west coast of Alaska.

Senator FERGUSON. And that is only 2 months a year that you can do that?

General WORSHAM. No, sir; it is a little bit longer.

Senator FERGUSON. How much longer?

General WORSHAM. It is from about the middle of May until the middle of October, down the Mackenzie. Now, when the Bering Sea freezes up, when ice conditions get bad up there, I don't know.

Senator FERGUSON. How near are you completed on this pipe line today?

General WORSHAM. On the pipe line today we have completed a road from Johnson's Crossing to Sheldon Lake, which is 232 miles, 218 miles to Sheldon Lake; and on the other side we have 72 miles completed, leaving about 230 miles to do.

Senator FERGUSON. Have you the road through for that?

General WORSHAM. Two hundred thirty miles?

Senator FERGUSON. You haven't the road through for the entire distance as yet?

General WORSHAM. No, sir; there are 230 miles, but we expect to have the road through and the pipe line through by the end of this year.

Senator FERGUSON. Is that done by private contractor?

General WORSHAM. Yes, sir.

Senator FERGUSON. How many men were working on the pipe-line project; how many civilians?

General WORSHAM. On Canol 1 alone, you mean?

Senator FERGUSON. That would be from Norman Wells here.

General WORSHAM. Norman Wells here, we have about 1,700 men over at Canol, and we have about 350—about 2,700 men.

Senator FERGUSON. Have you any refinery at all at Norman Wells, or in that district?

General WORSHAM. Yes, sir; there is a small refinery at Norman Wells.

Senator FERGUSON. What's its capacity?

General WORSHAM. Its capacity is about 350 barrels per day. This summer they stepped that up a little bit.

Senator FERGUSON. How much?

General WORSHAM. I am not sure; I think they have taken as much as five or six hundred barrels.

Senator FERGUSON. Barrels of what?

General WORSHAM. That is the crude that goes through the refiner. Their recovery is—I don't know the exact figure on the recovery, but I imagine it is about 60 percent. They produce 87 and 91-octane gasoline.

Senator FERGUSON. Eighty-seven and 91? You haven't any capacity there for a hundred?

General WORSHAM. No, sir.

Senator FERGUSON. Do they use 100-octane in the planes that go through to Russia?

General WORSHAM. All the combat planes are hundred octane, I understand.

Senator FERGUSON. Is that plant capable of producing any hundred octane?

General WORSHAM. No, sir.

Senator FERGUSON. What would it cost to put that capacity in there, that you could make it hundred octane?

General WORSHAM. That I couldn't tell you.

Senator FERGUSON. What are they doing with the gas that they are producing in the refinery?

General WORSHAM. Ordinarily that refinery operated in the summertime to produce gasoline for the mines located at Yellow Knife and on Great Bear Lake and for trappers.

Senator FERGUSON. Are they working now?

General WORSHAM. That I do not know. I understand that some of the gold mines up there have been shut down.

Senator FERGUSON. At least we are not getting—the United States is not getting—that capacity.

General WORSHAM. We are using gasoline from that refinery to reduce transportation costs by water down the Mackenzie River. We have been using it.

Senator FERGUSON. When will you start to produce here in Whitehorse?

General WORSHAM. We can start—there is a period when the refinery has to be adjusted, and so forth, but we should be in operation in the latter part of January.

Senator FERGUSON. Do you know the cost of the pipe line?

General WORSHAM. I can give you the cost of the refinery and the pipe line.

Senator FERGUSON. What is that?

General WORSHAM. It is eighteen million, I think it is.

Senator FERGUSON. \$18,000,000?

General WORSHAM. \$18,000,000; yes, sir.

Senator FERGUSON. That is an old refinery brought up here and reset, is it not?

General WORSHAM. It is the Bareco Refinery from Corpus Christi. However, that was a simple cracking plant and we have added an isomerization and alkylation, which we call stage 2.

Senator FERGUSON. That accounts for so much new material on the ground out here.

General WORSHAM. That is it; yes, sir.

Senator FERGUSON. Will this produce, after you get it, hundred-octane?

General WORSHAM. Yes, sir.

Senator FERGUSON. Without any further machinery or equipment?

General WORSHAM. Yes, sir; that is right. If we add the Houdry process, which will be stage 3, we will get a larger percentage of hundred-octane.

Senator FERGUSON. How much hundred-octane will you get from it the way it is now?

General WORSHAM. That varies as to how you want to run your refinery; whether you want a maximum amount of 87 or 91 or 100. The maximum would be about 500 barrels per day of hundred-octane.

Senator FERGUSON. Your need here is hundred-octane; isn't it?

General WORSHAM. It is both. We need hundred-octane for airplanes. We need some 91 for commercial and transport planes. We need 87-octane gasoline for motortrucks, and some Diesel fuel.

Senator FERGUSON. What is the difference?

General WORSHAM. Our total recovery runs from about 73 to 80 percent, depending upon how the refinery is operated.

Senator FERGUSON. How much 100-octane should you have here?

General WORSHAM. That I cannot answer. That depends upon the number of planes that the Air Forces fly through to Russia.

Senator FERGUSON. What do you anticipate that you need for trucks in this neighborhood?

General WORSHAM. I think you could probably answer that better than I because that is a supply problem, General, and I am the constructor.

General O'CONNOR. That is another qualified statement; that depends on how many trucks we are going to run over the road.

General WORSHAM. I'd like to correct that figure.

Senator FERGUSON. Do you want to correct that?

General WORSHAM. I'd better look it up. I could give you the whole figures.

Senator FERGUSON. Do you want to state now, General O'Connor, on the record?

General O'CONNOR. I am trying to make an estimate. It takes a ton of gas for a Diesel to get from here to Fairbanks and back.

Mr. HALLEY. And back?

General O'CONNOR. And back, yes; and we were planning to run 50 trucks a day, and that would be 1,500 barrels a month. Now, then, they use in the fields for warming up and around the fields quite a considerable quantity. They have these heaters for the airplanes. The trucks that are out have to stay out, have to keep their engines running, or they can't start them again, day and night, so that—

Senator FERGUSON (interposing). Do I have it right that you have to keep your trucks running all the time here?

General O'CONNOR. If you want to run them in the morning, yes; open them in the morning. Of course, we expect this winter to have facilities to avoid some of that, but we did have to last winter. We are getting enough facilities to avoid a great deal of it, but any truck that is out away from a heated garage has to be kept running.

Senator FERGUSON. Therefore do you try to drive them night and day?

General O'CONNOR. Yes; we do.

Senator FERGUSON. With different drivers?

General O'CONNOR. That is right.

Mr. HALLEY. You also, do you not, have to burn fires under the axles and the transmission and differentials, don't you?

General O'CONNOR. We did last winter. You see, we had temperatures as low as 70 below zero, and once a truck stops it freezes.

Senator FERGUSON. Do you know at what temperature this oil will flow through the lines?

General O'CONNOR. They say the freezing point is something below 70°, the pour point.

General WORSHAM. I would like to correct that figure. The \$15,000,000 was for what we call Canol 1 east with appurtenances, and Canol 1 west is \$16,000,000, making a total of \$31,000,000.

Senator FERGUSON. Well, tell us what you mean by east and west.

General WORSHAM. We have a dividing line at Sheldon Lake, and Sheldon Lake east is what we call Canol 1 east and Sheldon Lake west is Canol 1 west. That includes all production at Norman Wells—the pipe line, pumping stations, and the refinery here. That is the complete project.

Senator FERGUSON. Who drilled the 14 wells at Norman Wells?

General WORSHAM. At Norman Wells the wells were drilled by the Imperial Oil Co.

Senator FERGUSON. Paid for by the United States?

General WORSHAM. Yes, sir; reimbursed.

Senator FERGUSON. The first 14?

General WORSHAM. No, sir; the wells that we drilled to increase the production and to delineate the field.

Senator FERGUSON. At the present time we are covering the cost of drilling, the cost of exploration——

General WORSHAM. No, sir; you are covering the cost of drilling the Norman Wells field alone to supply petroleum for the refinery, the cost of the pipe line, pumping stations, and the refinery.

Senator FERGUSON. Who is paying the cost of exploration?

General WORSHAM. The cost of exploration is being paid by the United States.

Senator FERGUSON. In other words, the United States is paying the whole bill?

General WORSHAM. Yes, sir.

Senator FERGUSON. Now, what do we pay for that oil that we get?

General WORSHAM. The price, as I recall it, for the oil that they actually have is \$1.50 a barrel.

Senator FERGUSON. That is the seven wells——

General WORSHAM. Well, they have four producers.

Senator FERGUSON. The four producing wells.

General WORSHAM. Well, they pay \$1.25 until they have used a million and a half barrels, and then 50 cents of that dollar and a quarter goes back to reimburse the United States for the cost that they have put in.

Senator KILGORE. In other words, what it really amounts to is that we are paying \$1.25 royalty for the privilege of taking oil on a Crown range and transporting it to a refinery, up to a million barrels, and after that we pay 75 cents a barrel royalty on the oil. Isn't that right?

General WORSHAM. I am not familiar enough with oil royalties to convert that into that equivalent.

Senator KILGORE. What I mean by royalty is this: In drilling in the United States we have merely to pay the man who owns the land one-eighth of the oil produced as a royalty; in some fields they pay one-sixth; in most fields they pay one-eighth of the oil produced. In here you are not paying the eighth; you are paying a flat sum of \$1.25 a barrel for your oil produced from the wells drilled at the expense of the United States, and you are paying them \$1.50 a barrel for the oil produced from the wells drilled by them, and when we have taken a million barrels at \$1.25, after that we get a credit of 50 cents a barrel off the dollar and a quarter, or we pay 75 cents a barrel for the oil in the ground; and we must get it out and bring it here. Is that right?

General O'CONNOR. The negotiations were made in Washington and Ottawa between the United States Government and the Canadian Government and the contractors. I went over the thing over a year ago and don't remember the details. The picture I get is that the Imperial Oil Co. had developed the field and spent a certain amount of money.

Senator FERGUSON. Do you know how much?

General O'CONNOR. No. The basis of these payments for oil that we get out was to reimburse them for the expenses that they had gone to in developing the field, and then when we went outside of their area and went into Crown lands, any question of reimbursing by the Canadians or what is going to be done is going to be subject to conference after the war. The picture that I got at the time was that the arrangement was fair and both the Canadians and the Americans were in it for the war effort and the only private interest concerned was to

reimburse the Imperial Oil who incidentally are charging a fee of \$1 for their services—we stand the expense.

The purpose of that 1,500,000 barrels was to reimburse them for money that they had already spent up in there and for reducing the size of their field. I am not so sure of these details, but they have all that on record.

Senator KILGORE. But, General, once the war effort is over, the oil reverts to the Imperial Oil Co.

General O'CONNOR. No; it reverts to Canada, and the rights of Canada that the Imperial Oil have will be recognized by the Canadian Government. They will close all that area to any new patenting.

Senator KILGORE. What I am getting at is this. We have——

General O'CONNOR. After-the-war rights.

Senator KILGORE. We have no after-the-war rights.

General O'CONNOR. That is subject to the negotiations to be carried out at the conclusion of the war. For instance, Canada, if they wish, in the negotiations may indicate that they will give us some reimbursement for the road, and the same way with the oil; everything we are doing up here, airfields and all, is supposed to go in that same category. However, as to the details, this has been gone into very meticulously and with orders and councils in Canada and the State Department and all that, and it is quite intricate.

Mr. HALLEY. At that point, General, was it the State Department or the War Department that made the arrangements on this transaction?

General O'CONNOR. I can't answer that too carefully. I know this was a military effort that has been cleared through the governmental channels, and we deal in a great many cases through the State Department in Washington and in Ottawa, and through the Joint Defense Board. Every action that we take, every decision that is made, goes through that channel and is recorded and agreed to rather meticulously.

Senator KILGORE. General Worsham, let's go into a few figures on this. The maximum flow that we can hope for is 3,000 barrels a day through the pipe line?

General WORSHAM. Yes, sir.

Senator KILGORE. From Norman Wells. Out of that, how many barrels of 100-octane? I think you said we could get about 500 barrels of 100-octane.

General WORSHAM. Yes, sir.

Senator KILGORE. How much of 91, if we get 500 barrels of 100-octane?

General WORSHAM. The recovery is, you get about 1,600 barrels of other petroleum products.

Senator KILGORE. In other words, we get 1,600 barrels of other petroleum products, and that includes lubricating oil?

General WORSHAM. You can adjust that. If you want to operate your refinery——

Senator KILGORE. Then out of the 3,000 barrels we get about 1,600 barrels of petroleum products a day.

General WORSHAM. About 2,100, so that would be two-thirds; recovery runs between 73, as I recall it, and 78 percent.

Senator KILGORE. Now, the cost of the line and the road to build the line, including the refinery here, would be \$31,000,000?

General WORSHAM. Yes, sir.

Senator KILGORE. And also for that 3,000 barrels of oil, we are paying \$1.25 a barrel at Norman Wells, and we have to pay the operating expense of the line in here and the operating expense of the refinery plus \$1.25 a barrel.

General WORSHAM. Yes, sir.

Senator KILGORE. Now, how much of the total of the \$31,000,000 has been expended to date, including materials, labor, everything else? First let me ask you, does that \$31,000,000 include this exploration or any of the drilling?

General WORSHAM. It doesn't include the drilling outside of the Norman Wells field.

Senator KILGORE. But it does include how many wells in the Norman Wells field?

General WORSHAM. Yes, sir; all those that have been drilled.

Senator KILGORE. All those that have been drilled, but not any future drilling that may take place?

General WORSHAM. That is right. Well, no; that estimate includes everything in the Norman Wells field to produce the 3,000 barrels per day.

Senator KILGORE. But we already have 3,000 production, of course, subject to the dwindling of the wells, which takes place daily and for which we must drill additional wells in order to keep your flow up.

General WORSHAM. Well, if you want to make your draw-down more rapidly I think they drill on a basis of 1 to every 12½ acres.

Senator KILGORE. What I am getting at is that any oil well will dwindle 50 percent the first 12 months, and that is 50 percent in the field, and keep on dwindling from there on, and you have to keep drilling steadily in order to hold your flow up to the required 3,000 barrels a day, shall we say; you would have to keep drilling in order to hold that flow.

General WORSHAM. It depends a good deal on your off-field, how your seepages are.

Senator KILGORE. Yes; what your seepages are and what your rock pressure is.

General WORSHAM. Yes, sir.

Senator KILGORE. But that is the normal history of all oil fields, but you must keep drilling in order to hold production up to a definite standard. That applies to oil and gas both. Now, at this plant here for the making of hundred-octane, do you have to bring anything else in to fortify that?

General WORSHAM. No, sir; we do not. They use the—

Senator KILGORE (interposing). You don't have a hydrogenation set-up at this plant at all, do you?

General WORSHAM. No, sir.

Senator KILGORE. So as to step up your 87 and 91?

General WORSHAM. No, sir.

Senator KILGORE. Do you have figures that would show how much has already been spent? Could you get those for us?

General WORSHAM. Yes, sir; I could.

Senator KILGORE. As of, say, the first day of this month?

General WORSHAM. You can get all that in Washington from Colonel Wild; yes, sir.

I would like to point out that there, one of the big items in this construction up here is getting your men, material, and equipment to the job site, and we have our tonnage here at our refinery except for some valves and fittings, which involve very little critical material and relatively small cost compared to the total refinery.

Senator KILGORE. That is about 200 miles of road yet to build for delivery?

General WORSHAM. But the men are already in there and equipment is there on the job and they are working on it every day, and the estimate that I made on July 1 was that we were spending at the rate of about \$243,000 a day on the general project.

Senator FERGUSON. General, these 24 wells you say were all on the Imperial Oil Co.'s land?

General WORSHAM. They are all in the Norman Wells field.

Senator FERGUSON. That is owned by the Imperial Oil?

General WORSHAM. They have a grant there.

Senator FERGUSON. They have a grant from the Crown?

General WORSHAM. I don't know about that history.

Senator FERGUSON. How much does that grant cover?

General WORSHAM. In area?

Senator FERGUSON. Yes.

General WORSHAM. I couldn't give you that.

Senator FERGUSON. How do we know whether we are testing outside of the Imperial field on the Crown's land so that we would get a better rate, or do we have to first take all the oil out of the Imperial?

General WORSHAM. No; we have a clearance with the Canadian Government where we are exploring new fields, but this—

Senator FERGUSON (interposing). What I am trying to get at is, How do you know, if you don't know the boundary lines of the Imperial Oil Co.'s lands, when you are exploring on the Crown's land?

General O'CONNOR. In each case when they drill a well the Canadians and the Americans get together, and I know do a lot of surveying; it is quite a complicated game, and they are keeping very meticulous records, because a good many lots had been sold to wildcatting schemes up in that region.

Senator FERGUSON. Is there any danger of our being on somebody else's private land?

General O'CONNOR. We are protected by the Canadian Government. I wish you would get that from the War Department. That has been gone into in a great deal of detail.

Senator FERGUSON. General, as far as you know, all 24 wells are now on the Dominion or on the Imperial Oil Co.'s land?

General O'CONNOR. I am not prepared to answer that.

Senator FERGUSON. General Worsham, have you any opinion on that?

General WORSHAM. No, sir; I haven't. I can't give you definitely on whose lands they are.

Senator FERGUSON. But you are sure you have gone out on Crown lands to make surveys?

General WORSHAM. Yes, sir.

Senator FERGUSON. How many wildcat wells have you drilled?

General WORSHAM. We haven't drilled any.

Senator FERGUSON. There has been no drilling done outside of these 14 wells?

General WORSHAM. No, sir. Well, Hoosier Ridge we drilled; we drilled one at Hoosier Ridge.

Senator FERGUSON. How deep did you go?

General WORSHAM. That went down about 2,100 feet.

Senator FERGUSON. What is the Norman Wells depth?

General WORSHAM. About 1,350 to 1,900, as I recall it.

Senator FERGUSON. How long have these four wells of the Dominion Oil Co. been operating and producing?

General WORSHAM. As I understand it, there was oil discovered up there in 1920, and I think the Imperial built their refinery in about 1923, wasn't it?

Senator FERGUSON. Well, they had capacity up there for their own wells; they had refinery capacity for their own wells.

General WORSHAM. Yes, sir.

Senator FERGUSON. Wouldn't it have been better to put this refinery here at Norman Wells and brought down only the gas you were going to use?

General WORSHAM. No, sir; it would have been a tremendous project to get the tonnage for the construction of the refinery over to that locality.

Senator FERGUSON. In other words, it is much cheaper to build the pipe line?

General WORSHAM. Yes, sir; much less tonnage involved.

Senator FERGUSON. Do you know why it was brought here instead of building the refinery in Alaska?

General WORSHAM. No, sir; I don't know the background. I think General O'Connor perhaps can give you something on the background of that.

General O'CONNOR. In order to build the refinery in Alaska the transportation problem was such last year that it would delay the construction of this project 1 year. We could get oil out of Whitehorse 1 year earlier than we could at Fairbanks.

Senator FERGUSON. Isn't the Fairbanks railroad better than this one to get your material?

General WORSHAM. The Fairbanks railroad was used to capacity and pressed to capacity with the requirements of the Alaska Defense Command and the airfield up there last year, and has been pressed in fact up to the present time.

General LOWE. Chairman Kilgore, I suggest you might like to get this onto the record, in connection with what General Worsham testified to concerning exploration drilling. I gained the impression that a certain amount of exploration and development is constantly in order, to the end of being assured of maintaining your capacity flow through your pipe line; that the degree to which that exploration and development must go forward can only be determined on the basis of your experience with the fall-off rate of production in the wells now producing.

General WORSHAM. That is not quite correct, but before I do that I would like to change one statement that I made. It is 75 cents of the \$1.25 that goes to the United States instead of 50 cents; 75 cents for recoupment. We have delineated the fields sufficiently so that we

know what the capacity of that field is, and we have a directive to drill for the production of additional oil.

General LOWE. You have had an experience background sufficient to calculate your production?

General WORSHAM. We know the capacity of the field. It is constantly—as additional information is being obtained, the estimated capacities have been raised twice, to my knowledge.

General LOWE. The second point is, that if you or when you contemplate increased production of your wells, then that would call for additional exploration and development work above—

General WORSHAM (interposing). Well, if you—

Senator FERGUSON (interposing). Do I understand, General Worsham, that you have tested it so that you know that these 24 wells will keep this pipe line supplied and filled?

General WORSHAM. Yes, sir; I think that is so, although I am not—

Senator FERGUSON (interposing). For how long a period?

General WORSHAM. The production of the field now indicates that there is at least 13 years' supply.

Senator FERGUSON. And what are you exploring further for? What do you want more oil wells for if this will supply it for 13 years?

General WORSHAM. That is a question I think that you would have to get answered in Washington.

Senator FERGUSON. Is that part of the agreement with the Canadian Government, that you must go out into other territory and explore and develop their oil in this district?

General WORSHAM. I have a directive to develop additional oil, over and above the 3,000 barrels.

Senator FERGUSON. Going out how far?

General WORSHAM. The directive is rather broad. You could get that in Washington. The directive is there.

Senator FERGUSON. How long have you had this particular directive?

General WORSHAM. I think it was dated November 6, 1942.

Senator FERGUSON. And have you had any other or different directives?

General WORSHAM. On the oil project?

Senator FERGUSON. Yes.

General WORSHAM. No, sir; that is the latest directive.

Senator FERGUSON. If the committee decided to go onto the ground, what would we be able to see that you have not told us?

General WORSHAM. You would see some capped oil wells, you would see a construction camp, and see the road. Now, if you want—

Senator FERGUSON (interposing). That is the road that is coming down along the pipe line?

General WORSHAM. That is right; yes, sir.

Senator FERGUSON. That is in the nature of a tote road, is it not?

General WORSHAM. Yes, sir.

Senator FERGUSON. Just to make it passable to get in the supplies?

General WORSHAM. That is correct, and also sufficient so that the pipe line and pumping stations can be maintained and serviced.

Senator FERGUSON. How wide a road is that?

General WORSHAM. That road varies. It is 16 feet in some places and about 16 feet I would say was the average. You have to make it wide enough so that they can pass.

Senator FERGUSON. How much gravel do you put on top of that?

General WORSHAM. There is no surfacing material on the top of that. We use the gravel for the base without crushing any gravel for the surfacing material.

Senator FERGUSON. In the wells that are capped, what would we see?

General WORSHAM. A pipe sticking up out of the ground.

Senator FERGUSON. How many wells are capped, General?

General WORSHAM. I think all except four; I am not certain about that.

Senator FERGUSON. And the reason they are capped is that you are not using them at the present time?

General WORSHAM. That is correct.

Senator FERGUSON. Because you have only the capacity for the few wells that are in there at the present time?

General WORSHAM. That is correct.

Senator FERGUSON. Now, we couldn't see this exploring, we couldn't get any data that you can't give us on that?

General WORSHAM. No, sir; that is all.

Senator FERGUSON. Tell me something about how you explore. Do you do it in an airplane, or—

General WORSHAM. We had aerial maps taken of a portion of the area, and those are studied through a stereoscope to get surface indications from a photograph. Then there are 12 geological parties who visit the more promising areas.

Senator FERGUSON. How do they go out?

General WORSHAM. They go out by canoe, on foot, and sometimes they fly into certain places.

Senator FERGUSON. Then it would be very lucky if we found any of those in; they would all be out in the field.

General WORSHAM. Yes, sir.

Senator FERGUSON. Where it would be impossible for us to see the surveying party or get any word from them, is that correct?

General WORSHAM. Yes, sir; that is true, unless some party happened to be at Norman Wells for supplies.

Senator FERGUSON. Where does this line, this road, strike off from the Alaskan Highway to go up along the pipe line?

General WORSHAM. At Johnson's Crossing.

Senator FERGUSON. That is south of us here?

General WORSHAM. About 80 miles.

Senator FERGUSON. So we would be able when we fly over to see the kind of a road that you are erecting up along the pipe line?

General WORSHAM. Yes, sir.

Senator FERGUSON. Then you would say the most that we would see up there would be capped wells?

General WORSHAM. Well, you would see capped wells and a construction camp and the activities of welding the pipe line and building the road.

Senator FERGUSON. Well, we would have to go 70 miles down to see them welding the pipe, would we not?

General WORSHAM. That is right. Well, the welding is not out that far.

Senator FERGUSON. How far out is the welding?

General WORSHAM. About 22 miles.

Senator FERGUSON. Well, we would have to go out this highway 22 miles to see them weld the pipe?

General WORSHAM. That is right.

Senator FERGUSON. There is no secret about that?

General WORSHAM. Not at all.

Senator FERGUSON. That is an ordinary pipe line?

General WORSHAM. Yes, sir.

Senator KILGORE. General, how much acreage is in the tested area that you have outlined up there by drilling work?

General WORSHAM. I will have to get that figure for you. I think maybe we have got it here. The reason I am hesitant in giving it to you off-hand is because there is a certain portion that is accessible and another portion that is on Bear Island and Goose Island that is subject to flood nights and would require protective measures for that. Some of them, that is under the Mackenzie River, we hope to be able to recover by slant hole drilling.

Senator KILGORE. What kind of drilling equipment do you use in that, churn or rotary?

General WORSHAM. Rotary, I guess it is.

General O'CONNOR. There is one old churn drill.

General WORSHAM. There is an old churn drill the Imperial Oil had up there.

Senator KILGORE. How many rotary?

General WORSHAM. As I recall it, the Imperial had four rigs and we have moved in seven others for wildcatting.

Senator KILGORE. You have, then, how many capped wells that are producers?

General WORSHAM. I would like to check that figure to give it to you exactly.

Senator KILGORE. Are those flow wells or pumping wells?

General WORSHAM. I think they are flow wells.

Senator KILGORE. Do you get natural gas there?

General WORSHAM. There is gas pressure; there is enough pressure to bring it up.

Senator KILGORE. How are you running your pumping stations, with what kind of fuel? What kind of fuel are you using there, taking it right out of the line?

General WORSHAM. Those are gasoline-driven engines.

Senator KILGORE. Then you have to haul your gasoline in for the engines?

General WORSHAM. Oh, no; oh, yes; we do for that, until we get it from the refinery.

Senator KILGORE. It will have to be hauled to a pumping station?

General WORSHAM. Oh, yes; we can't use the crude.

Senator KILGORE. You can't use the crude. Now, this is paraffin-base oil?

General WORSHAM. That is correct.

Senator KILGORE. But it is rather high test, by that I mean it is a high-gravity oil, high specific gravity, or low?

General WORSHAM. That I can't tell you.

General O'CONNOR. We can put it in a Diesel tractor and run it.

Senator KILGORE. Well, that is a high-specific-gravity oil.

Mr. HALLEY. It has got to be a high-grade oil.

Senator KILGORE. You don't include in your pipe line the gathering net that you are going to have to put in the field? Those wells are pretty widely scattered, aren't they?

General WORSHAM. No, sir; they are fairly well concentrated. That includes all the projects, the picture that I gave you.

Senator KILGORE. They are fairly well concentrated, 1 to each 12½ acres?

General WORSHAM. Yes, sir. That is the maximum that they think they ought to drill in that field. Now, we may not have to drill that many.

Senator KILGORE. It's funny, down in West Virginia they only let you drill 1 to every 80 acres.

General WORSHAM. Yes, sir. Well, that depends upon how rapidly they want to recover.

Senator FERGUSON. How many more can you drill, General, using 12½ acres in the so-called plat that you know about?

General WORSHAM. I can't answer that question. The field has been developed sufficiently. Now we know that we can get 13,000,000 barrels of oil out of this field.

Senator FERGUSON. You have tested that?

General WORSHAM. That is determined.

Senator FERGUSON. But you are still looking for further fields for this war effort? Is that true?

General WORSHAM. We have a directive to produce additional oil; we have a directive to produce 20,000 barrels daily.

Senator FERGUSON. But you can get 13,000,000—

General WORSHAM. That is in the ground.

Senator FERGUSON. Yes; that you have tested.

General WORSHAM. Yes, sir.

Senator FERGUSON. Now, in what miles is that 13,000,000 tested?

General WORSHAM. I had better look up that figure.

Senator KILGORE. General, your directive is for 20,000 barrels a day? Now, how are you going to get that out and make it available if you have only a 3,000-barrel-a-day pipe line?

General WORSHAM. That will require another pipe line or barging down the Mackenzie.

Senator KILGORE. Barging is an awfully slow process because you would have to go in the Bering and you only have about 3 months in there that you can put a tanker in.

Senator FERGUSON. For that matter, you could have barged out what you are producing up there now, couldn't you? You put the storage up there. Isn't that right, General?

General WORSHAM. Yes, sir; you could barge it out. I have been informed that one of the reasons—I don't know the reason behind this development of the additional oil, but the petroleum situation in the United States is very critical and any additional oil that can be secured is to the advantage of the war effort.

Mr. HALLEY. General, how far afield are the exploration crews authorized to go?

General WORSHAM. Our directive permits quite an area north of the sixty-sixth parallel. However, we have held them to places generally in between Fort Norman and Norman Wells.

Mr. HALLEY. Isn't it true that some exploration parties have gone as far as the Arctic?

General WORSHAM. None of mine have.

Mr. HALLEY. Are there exploration parties other than those under your direction?

General WORSHAM. Not that I know of.

Mr. HALLEY. All 12 that you know of are under your own direction?

General WORSHAM. Yes, sir.

Mr. HALLEY. How far are they going east and west?

General WORSHAM. So far, I think about 25 miles on each side the Mackenzie River.

Mr. HALLEY. So that you would say they are confined to a strip about 50 miles east and west?

General WORSHAM. About 50 or 60 miles along the Mackenzie River.¹

Mr. HALLEY. And no exploration outside of that field?

General WORSHAM. Not that I know of.

Mr. HALLEY. And there would not be any that you do not know of?

General WORSHAM. I can't answer that. There may be somebody else that has exploration parties in there.

Mr. HALLEY. Well, who else could have exploration parties in there?

General WORSHAM. The Canadian Government might have parties in there.

Mr. HALLEY. Would that be possible under our arrangement, working out of Norman Wells?

General WORSHAM. That I don't know. I know they have parties in British Columbia. Whether or not they have sent any up in the Territory I don't know.

Senator FERGUSON. General, are you right on this 66? Where is Norman Wells located?

Mr. HALLEY. At 66.

Senator FERGUSON. He says they can't go north.

General WORSHAM. No, no; anywhere north of 66.

Senator FERGUSON. Oh, anywhere north of 66, I beg your pardon.

Mr. HALLEY. But they actually are not doing it?

General WORSHAM. No; we have confined them in there because we have had excellent indications in this area.

Senator FERGUSON. Do you have any sound² equipment in there?

General WORSHAM. Yes, sir; we have a seismic crew in there. They have done very good work.

Mr. HALLEY. Now, General, you are acting under a directive to produce 20,000 barrels a day capacity. Is that correct?

General WORSHAM. That is correct; finding, locating 20,000 barrels.

Mr. HALLEY. And how much capacity are you directed to produce?

General WORSHAM. Three thousand barrels a day.

Mr. HALLEY. Which is almost the capacity of both the pipe line and the refinery. Is that right?

¹ In this connection see infra, p. 9348 et seq.

² Question indistinct on record; neither question nor answer were in the stenotype notes.

General WORSHAM. That is right, that is what we are designing for.

Mr. HALLEY. Can you give the committee in some detail the amount of work which has been completed, first at Normal Wells? Is the equipment in position for that? As soon as the pipe line is finished, the wells can start producing into the lines?

General WORSHAM. That is correct. We have some tonnage that is still going north that is in process of movement now.

Mr. HALLEY. General, what type of tonnage is still going up to Norman Wells?

General WORSHAM. Some pipe is still being moved, and supplies and housing for the crews that we are getting in there to work.

Mr. HALLEY. And is that en route north of Whitehorse?

General WORSHAM. We don't take it into Whitehorse; we take it into McMurray, which is the head of the rail route.

Mr. HALLEY. And is it all off the rail and on the road now?

General WORSHAM. All except—the last figure that I saw there was still about—and I haven't seen one since I left Edmonton a week ago—there were about 4,000 tons that were still at Waterways. That is 10 percent.

Senator KILGORE. Where?

General WORSHAM. Waterways; McMurray and Waterways. Waterways is just across the river.

Senator KILGORE. How far inland is that?

General WORSHAM. Oh, that is about 325 miles by air northeast of Edmonton.

Mr. HALLEY. Now, with reference to the pipe line itself, could you with some detail state to the committee how much of the pipe line is actually in place, how much is on the scene, and with respect to the parts that are not yet on the scene, where they are, and I refer there first to the pipe itself, second to the pumping equipment, and finally the road.

General WORSHAM. For the Canol 1 project, the check that I made about a month ago showed at that time that there was 92 percent in Canada or Alaska; by Alaska I mean Skagway or Juneau. I'd have to go back to my transportation section to check in detail, but I would estimate that it would be less than 2 percent that is either on the job or en route.

Mr. HALLEY. Could you state how much actually is on the job?

General WORSHAM. On the job? Do you know how much is on the job for the refinery?

Colonel JOHNSTON. The pipe line—we have all of it available.

Mr. HALLEY. On the job?

Senator KILGORE. How much of it is strung?

Colonel JOHNSTON. Oh, strung. We have all of the 6-inch line in place and welded; in all, 120 miles. We have 75 miles of 4-inch beyond the 6 in place, and pipe is strung some 25 or 30 miles beyond this. We have on hand enough pipe to extend 40 miles beyond Sheldon Lake.

Mr. HALLEY. Where on hand?

Colonel JOHNSTON. It is in Whitehorse and ready to be distributed. Some of this is at Dawson Creek.

Senator FERGUSON. What percentage is at Dawson Creek?

Colonel JOHNSTON. I can't answer that.

General WORSHAM. All of it will be hauled up here by the 15th; all the pipe from Dawson Creek will be in here not later than October 15.

Senator FERGUSON. How much is down there, General?

General WORSHAM. There is about, I think, 1,500 tons.

Senator FERGUSON. Will you state on the record why you put in 120 miles of 6-inch pipe?

General WORSHAM. We had some 6-inch pipe on hand and we wanted to get across some bad places before breakup, and it also reduced the number of pumping stations.

Senator FERGUSON. Why was it on hand? Why did you have 120 miles of 6-inch pipe on hand?

General WORSHAM. That I don't know. It may have been more readily available. That was here when I came in on the job.

Mr. HALLEY. Now, has not some pipe been laid at the western end of the line?

General WORSHAM. At the eastern end there has. I think they are out now about 23 or 24 miles.

Mr. HALLEY. And have they got pipe for any further work?

General WORSHAM. Yes; we have pipe on hand or en route which will arrive there in time to complete that.

Mr. HALLEY. How much is now on hand there?

General WORSHAM. That I couldn't tell, because that picture changes daily as the barges arrive.

Mr. HALLEY. Can you repeat the total length of the line?

General WORSHAM. It is approximately 600 miles from Norman Wells to Whitehorse.

Mr. HALLEY. And of the 600 you have laid about 200? Would that be right—well, less than 200?

General WORSHAM. No, it is closer to about 267 or 270, but the pipe goes in there rapidly, much more rapidly than the road. The pipe crew can weld about a mile and a half of pipe a day.

Mr. HALLEY. How much of the road has been cut through?

General WORSHAM. All except 235 miles.

Mr. HALLEY. Now, turning to the refinery down here at Whitehorse, do you know the total number of tons of equipment that will be needed?

General WORSHAM. No, I haven't those figures available. It is all on hand, though, except some valves and fittings.

Mr. HALLEY. You mean you need nothing but valves and fittings at this point?

General WORSHAM. That is right.

Mr. HALLEY. Can you give the percentage of material that is here?

General WORSHAM. Ninety, ninety-eight, ninety-two. I would give a rough estimate of around 98 percent.

Mr. HALLEY. How many men are working on the refinery?

General WORSHAM. Three hundred and fifty.

Mr. HALLEY. How much of the material is in place?

General WORSHAM. It is about 20 percent complete, but the most difficult task to get in ahead of the weather is well along, and that is putting in the concrete footings and foundations.

Mr. HALLEY. Aside from concrete, how much of the steel and actual refinery equipment has been put in?

General WORSHAM. The project is 20 percent complete. Mr. Brady could give you more details on that.

Mr. HALLEY. Can we get Mr. Brady?

General WORSHAM. Yes.

Senator KILGORE. Will you hold up your right hand, please, and be sworn?

(The witness was sworn.)

**TESTIMONY OF JAMES F. BRADY, REFINERY CONSTRUCTION
SUPERINTENDENT, BECHTEL, PRICE, CALLAHAN**

WHITEHORSE REFINERY PROJECT

Mr. HALLEY. Mr. Brady, will you state your full name and your position?

Mr. BRADY. James F. Brady, refinery construction superintendent.

Mr. HALLEY. For what company, please?

Mr. BRADY. Bechtel, Price, Callahan.

Mr. HALLEY. Mr. Brady, when did work begin on the refinery at Whitehorse?

Mr. BRADY. The latter part of April, this year.

Mr. HALLEY. How much work had been completed up to June 1?

Mr. BRADY. The site had been cleared and preliminary grading operations were under way. The percentage was perhaps 5 percent or less.

Mr. HALLEY. When is the refinery scheduled for completion? By that I mean complete installation of all equipment, but not necessarily final adjustments on the equipment.

Mr. BRADY. The schedule calls for two phases of completion: Stage 1 for December was for operation of the crude, the thermal cracker, and the caustic-treating unit; stage 2 for alkylyzation, isomerization and gas concentration was to have been the first of January.

Mr. HALLEY. You say it was to have been. Has there been any change in these completion dates?

Mr. BRADY. Why, there have been changes because the delivery of materials has made it impossible to make stage 2 on January 1.

Mr. HALLEY. What is the present schedule?

Mr. BRADY. I believe it is considered practical for March.

Mr. HALLEY. And will stage 1 be completed by December 1?

Mr. BRADY. By December 31 it now seems possible.

Mr. HALLEY. Now, will you state—

Senator FERGUSON (interposing). Just a minute. Is that possible or probable?

Mr. BRADY. That is probable.

Mr. HALLEY. Now, will you state the particular units which comprise the job, just to get them on the record, and then we can talk a little bit about each unit.

Mr. BRADY. The crude unit, thermal cracking and reforming, power house, alkylyzation, isomerization, gas concentration, caustic treating, ethyl blending, and tank farm—

Mr. HALLEY. Tank what?

Mr. BRADY. Tank farm.

Mr. HALLEY. Are there furnaces as a separate unit?

Mr. BRADY. Well, a furnace in conjunction with both the crude unit and the thermal cracking unit is an integral part of the process equipment.

Mr. HALLEY. Now, I'd like to go over with you each one of these units. I'd like you first to explain the purposes of these generally and briefly, and then to take up as to the state of completion and whether or not the equipment is here or what you know about where the necessary equipment is now located. The first would be the crude unit.

Mr. BRADY. Well, gentlemen, I am not a process engineer.

Senator FERGUSON. You are a construction engineer?

Mr. BRADY. That is right.

Mr. HALLEY. Well, would you just state insofar as it relates to your construction what you understand the crude unit is, and then go on to the other question.

Senator FERGUSON. What part is complete?

Mr. BRADY. Well, the crude unit is the first phase of the operation. They charge crude there and top it.

Mr. HALLEY. Have you got that crude unit at the present time under construction?

Mr. BRADY. Yes; we have the crude unit quite well along.

Mr. HALLEY. About what percent complete is that? What percent complete is the crude unit?

Mr. BRADY. Approximately 50 percent.

Mr. HALLEY. Is all the equipment needed to complete it on the scene?

Mr. BRADY. No; it is not all here yet.

Mr. HALLEY. What is missing, just generally, not in too much detail?

Mr. BRADY. We are missing the base of the crude fractionator, that is the principal tower. It is not on the job site yet, but is between here and Skagway.

Mr. HALLEY. Otherwise have you got all the equipment you need?

Mr. BRADY. Otherwise we have everything on hand, but—

Mr. HALLEY. Take your time; I didn't want to rush you.

Mr. BRADY. We have everything on hand but some crude charge pumps.

Mr. HALLEY. Do you know where they are?

Mr. BRADY. No; but some of our experts that are working on them will know.

Mr. HALLEY. Are they as far off as Skagway yet, do you know?

Mr. BRADY. Oh, no; we hope to have them in the early part of December. We have not had a confirmation on that yet.

Mr. HALLEY. Now, referring to the thermal cracking unit, I think we all know generally what a thermal cracking unit is, so will you proceed to state the percentage of completion on that thermal cracking unit which you have already achieved.

Mr. BRADY. The percentage of completion on that unit is about 40 percent.

Mr. HALLEY. What remains to be done? Can you give us a breakdown of what has been done and what has not yet been done?

Mr. BRADY. All principal towers came in here knocked down, that is, we had to weld them together. We have erected them, practically all heavy erection work is completed, pumps are all set, furnace steel is all erected, virtually all erected. No piping has yet been installed of a process nature. That is the next step in operations.

Mr. HALLEY. Now, is the necessary equipment on hand? If so, how much is and how much is not?

Mr. BRADY. All major equipment for the thermal cracker is on hand.

Mr. HALLEY. Now, the furnaces that concern the crude and thermal cracking units, are they on hand?

Mr. BRADY. The furnace structural members are on hand. The tubes are in Skagway.

Mr. HALLEY. Now, turning to the power house, what is the status of that?

Mr. BRADY. The concrete work in the power house is approximately 75 percent complete. The structural steel for the power house is about 95 percent on hand. The boiler headers are in Skagway, and tubes are on hand; boiler structural steel is en route, has passed Northgate.

Mr. HALLEY. Will you state first, in general, the purpose of the alkylation and isomerization plant and then state the status of it?

Mr. BRADY. The purpose of the alkylation, isomerization, and gas concentration is to step up the octane of the gasoline.

General LOWE. That word is isomerization—i-s-o-m-e-r-i-z-a-t-i-o-n.

Mr. BRADY. The present status of this work: foundations for the alkylation unit are about 80 percent complete; very little material for this unit is on hand. We are concentrating all our efforts toward assuring that stage 1 in this operation will be complete.

Mr. HALLEY. Well, where is the equipment necessary for the alkylation and isomerization plant?

Mr. BRADY. A lot of it is en route. Some of it is on hand. Some of it has not yet left the vendors.

Senator FERGUSON. Has it been manufactured?

Mr. BRADY. Yes, sir; I would say practically all of it has been manufactured or is in process of manufacture.

Mr. HALLEY. What is the total tonnage of that equipment for the alkylation and isomerization plant?

Mr. BRADY. Are guesses allowed here?

Senator FERGUSON. If you say it's a guess.

Mr. BRADY. I would estimate 10,000 tons.

Mr. HALLEY. And of that, how many tons are here now? If you want to guess, say so, that is all right.

Senator FERGUSON. If you say it is a guess, an estimate.

Mr. BRADY. Perhaps 2,000 pounds—2,000 tons.

Mr. HALLEY. Now, turning to the gas-concentration plant, would you state briefly its purpose and then give us its status?

Mr. BRADY. Well, its purpose is to recover gasoline from the wild ends out of the thermal cracker. Its present status: The foundation work for the main building has been poured. Nothing has been erected.

Mr. HALLEY. Is the equipment on hand?

Mr. BRADY. Very, very little.

Mr. HALLEY. Where is it?

Mr. BRADY. En route.

Mr. HALLEY. Is it all en route?

Mr. BRADY. Not all of it; part of it is en route; part of it is scheduled for shipment soon.

Mr. HALLEY. Now, turning to the caustic treating plant, will you state its purpose and then its status?

Mr. BRADY. The purpose of the caustic treating plant is to treat the refined products from the various units so that they won't eat up your motor.

Senator FERGUSON. Do I understand, then, that it will be March 1 before you will be able to produce gasoline?

Mr. BRADY. No, sir; that is not right. Stage 1 operations will produce motor gasoline.

Senator FERGUSON. That's about 86 octane or 87, what?

Mr. BRADY. I am not qualified to answer that, sir.

Senator FERGUSON. It will not produce a hundred, will it?

Mr. BRADY. I don't think so.

Mr. HALLEY. What is the status of this caustic treating plant?

Mr. BRADY. The foundation work is complete for the caustic treating plant. The principal equipment is on hand and erected.

Mr. HALLEY. How nearly complete is the caustic treating plant?

Mr. BRADY. Approximately 50 percent.

Mr. HALLEY. And what work has been done?

Mr. BRADY. Foundations have been installed completely and major equipment has been erected.

Mr. HALLEY. Is all of the remainder of the equipment on hand?

Mr. BRADY. Nearly all of it is here, sir.

Mr. HALLEY. Now, turning to the ethyl plant, what is the status of that?

Mr. BRADY. We will complete the foundation work for the ethyl plant next week.

Mr. HALLEY. Is that the great big hole that is over there near the river?

Mr. BRADY. No, sir.

Mr. HALLEY. What's that great big ditch near the river?

Mr. BRADY. That is the water-intake structure.

Mr. HALLEY. Well, now, going on to the ethyl plant, what percent completion will you have arrived at when you have this foundation work finished?

Mr. BRADY. Approximately 8 or 10.

Senator FERGUSON. How big a job is the ethyl job?

Mr. BRADY. Do you mean compared to the whole refinery?

Senator FERGUSON. No, in time to complete it.

Mr. BRADY. That is a very small unit.

Mr. HALLEY. How many tons of equipment does it take?

Mr. BRADY. Conservatively, a hundred.

Mr. HALLEY. Is that material en route or on hand?

Mr. BRADY. Yes, sir.

Senator FERGUSON. Which?

Mr. BRADY. It is en route.

Mr. HALLEY. Has it left the United States?

Mr. BRADY. Yes, sir.

Mr. HALLEY. Now, turning to the tank equipment.

Mr. BRADY. May I go back?

Mr. HALLEY. Yes, surely.

Mr. BRADY. The major equipment for the ethyl plant is en route. The piping I don't know, I don't believe that is en route yet.

Mr. HALLEY. Now, on the tanks, what progress has been made on them?

Mr. BRADY. Let me clarify a point here first. The tank farm does not come under my supervision and therefore I don't like to give you facts and figures unless I tell you that they will probably all be guesses.

Mr. HALLEY. Well, can you state whether you have seen the work with your own eyes? You have, haven't you?

Mr. BRADY. Yes, sir.

Mr. HALLEY. Are the tanks up?

Mr. BRADY. You mean all the tanks, sir?

Mr. HALLEY. Any of them.

Mr. BRADY. Yes, sir.

Mr. HALLEY. How many are up?

Mr. BRADY. Perhaps 20 percent.

Senator FERGUSON. How many are you going to build, how many tanks?

Mr. BRADY. Perhaps about 30.

Mr. HALLEY. Is the equipment on hand for them, do you know?

Mr. BRADY. The tank material is either on the job or in Skagway.

Mr. HALLEY. Now, on that water intake, is there much equipment needed for that?

Mr. BRADY. No, sir.

Mr. HALLEY. Will that be completed before the freeze?

Mr. BRADY. Yes, sir.

Mr. HALLEY. I have no other questions. Thanks a lot.

Senator KILGORE. Do we have an oil refinery expert here, an expert on process?

General WORSHAM. The representative of the Standard Oil Co. is in Edmonton.

Senator FERGUSON. Have you an oil expert in town on the refinery?

General WORSHAM. Yes, sir; Mr. Nelson. His office is in Edmonton, but I understand he has an office in Whitehorse.

Senator FERGUSON. Will you see if he is in town now?

General WORSHAM. Yes, sir.

(The next witness was sworn.)

TESTIMONY OF ELMER JOHANN NELSON, CIVIL ENGINEER, STANDARD OIL CO., EDMONTON

STANDARD OIL OF CALIFORNIA OPERATING AND CONSULTING SERVICES

Senator FERGUSON. Will you state your full name?

Mr. NELSON. Elmer Johann Nelson.

Senator FERGUSON. Where do you live?

Mr. NELSON. Edmonton.

Senator FERGUSON. What is your business?

Mr. NELSON. Civil engineer.

Senator FERGUSON. You are in the services of what company?

Mr. NELSON. Standard Oil Co.

Senator FERGUSON. Is that of New Jersey or Indiana?

Mr. NELSON. That is a subsidiary of Standard Oil of California.

Senator FERGUSON. That is Standard Oil Co. of Canada?

Mr. NELSON. Standard Oil Co., Inc., in Alaska.

Senator FERGUSON. Have you any interest in the wells up at Norman Wells?

Mr. NELSON. No, sir.

Senator FERGUSON. Do you know anything about the refinery that is being built there?

Mr. NELSON. I know something about it.

Senator FERGUSON. Will you state what you do know about it, the capacities, and so forth, what kind of gasoline it will produce?

Mr. NELSON. The refinery will have a crude feed rate of 3,000 barrels per calendar day. In the first stage of operation it will produce 87-octane gasoline plus motor gasoline, plus some fuel oil. In the second stage of operation it can produce 100-octane gasoline plus motor gasoline plus Diesel or fuel oil or 91-octane gasoline plus motor gasoline plus Diesel oil or fuel oil.

Senator KILGORE. How do you produce the 100-octane gasoline in the second stage? You run your 87-octane gasoline through, and do you fortify it or redistill it or what do you do with it? You don't have a hydrogenation unit in it, do you?

Mr. NELSON. In the second stage; no, sir. We have a gas concentration unit, an isomerization unit and an alkylation unit in addition to the plants of the first stage.

Senator KILGORE. Now, take 1,000 barrels as a unit going through; at the end of the second stage, how much 100-octane gas would you have, how much motor fuel, and how much fuel oil?

Mr. NELSON. May I refer to a schedule?

Senator KILGORE. Right.

Senator FERGUSON. Does the schedule apply to this particular plant?

Mr. NELSON. It does. In the second stage we can produce—you asked for it on the basis of 1,000 barrels. This is on a basis of 3,000 barrels per calendar day.

Senator KILGORE. All right, 3,000.

Mr. NELSON. We can produce 479 barrels of 100-octane gasoline plus 1,018 barrels of motor gasoline.

Senator KILGORE. Of what octane will that be?

Mr. NELSON. I don't know, offhand.

Senator KILGORE. Just standard motor fuel?

Mr. NELSON. Standard motor fuel.

Senator KILGORE. All right.

Mr. NELSON. Plus 650 barrels a day of fuel oil.

Senator KILGORE. Fuel oil?

Mr. NELSON. Of which it may be necessary to divert as much as 125 barrels a day to make up fuel for the refinery.

Senator KILGORE. I see. Now, how much lubricant will you get out of that same 3,000 barrels, how much lubricating oil?

Mr. NELSON. This refinery does not produce lubricating oil.

Senator KILGORE. In other words, it uses its entire content for fuel. Is that right?

Mr. NELSON. No, sir; that isn't exactly right. You would still, after using 125 barrels of the fuel oil as refinery fuel under this operation, you would have 525 barrels left of fuel oil that you could use for other purposes. Now, you can either obtain that 479 barrels of 100-octane plus the 1,018 of motor plus the 650 of fuel, or by a different operation you can produce 897 barrels per day of 91-octane plus 915 barrels of motor gasoline plus 350 barrels of fuel.

Senator KILGORE. My question, however, was that this refinery is not adapted in any way to the production of lubricants from the oil.

Mr. NELSON. That is correct.

Senator KILGORE. Now, do you have to use tetraethyl lead in your production of gasoline here?

Mr. NELSON. Yes, sir.

Senator KILGORE. That has to be incorporated for mixing, doesn't it?

Mr. NELSON. Yes, sir.

Senator KILGORE. You have no way of manufacturing it here at the refinery?

Mr. NELSON. No, sir.

Senator FERGUSON. In ordinary business, over how many years would you amortize the pipe line?

Mr. NELSON. In our business in the United States the period of amortization, I believe, is usually set down by law.

Senator FERGUSON. What is it?

Mr. NELSON. I don't know.

Senator FERGUSON. What is your opinion on this one under this present condition?

Mr. NELSON. Well, this, Senator, is a military venture.

Senator FERGUSON. No; I didn't ask you that.

Senator KILGORE. He is just talking business.

Senator FERGUSON. I am just talking ordinary business operation. You see, we are going to turn this back after the war is over. We are going to turn it over to the Canadians. How long should it last?

Mr. NELSON. That is very difficult to answer.

Senator FERGUSON. What's your best opinion?

Mr. NELSON. Do you mean how long should it last physically?

Senator FERGUSON. Yes.

Mr. NELSON. Well, I should say that if it is properly maintained it would last, oh, 15, 20 years.

Senator FERGUSON. Fifteen or twenty years. What should be its cost of maintenance per mile?

Senator KILGORE. Add operation, maintenance and operation.

Senator FERGUSON. Yes.

Mr. NELSON. I can't answer that.

Senator FERGUSON. You can't answer that?

Mr. NELSON. With any degree of accuracy.

Senator FERGUSON. What about the plant itself here, the machinery and all, what's its life?

Mr. NELSON. The refinery?

Senator FERGUSON. Yes.

Mr. NELSON. That will depend, greatly depend, on the plant.

Senator FERGUSON. Well, this plant.

Mr. NELSON. This plant consists of a great many plants and some of them will have relatively long life and others will be——

Senator FERGUSON (interposing). What's its average life?

Mr. NELSON. There, again, it is a matter of maintenance, but I should say that a physical life of 5 to 10 years wouldn't be out of the question.

Senator FERGUSON. Have you been to Norman Wells?

Mr. NELSON. Yes, sir.

Senator FERGUSON. Have you seen the wells that are drilled?

Mr. NELSON. Yes, sir.

Senator FERGUSON. Have you been out on any of the scouting parties to ascertain, to try to locate more wells?

Mr. NELSON. No, sir.

Senator FERGUSON. Do you know anything about that?

Mr. NELSON. No, sir.

Senator FERGUSON. You are familiar with the fact that we drilled 14 wells?

Mr. NELSON. I wasn't aware that it was 14, but I was aware——

Senator FERGUSON (interposing). Do you know the capacity of the present wells that are now drilled?

Mr. NELSON. No, sir.

Senator FERGUSON. You are not familiar with that end of it?

Mr. NELSON. No; I am not.

Senator FERGUSON. What are you doing here now?

Mr. NELSON. I am on the consulting services contract of the Standard Oil Co. of California.

Senator FERGUSON. What's the Standard doing here?

Mr. NELSON. We have two contracts. One is an operating contract which calls for the operation of the pipe lines and the refinery; the other is a consulting services contract which calls for a review of the designs and lay-outs with a recommendation to the division engineer for their approval.

(The contracts referred to were marked "Exhibits Nos. 1084 and 1085-A to 1085-E", and are included in the appendix on pp. 9719-9789).

Senator FERGUSON. Do I understand that the Standard Oil of California is going to operate this line and this refinery for the United States Government?

Mr. NELSON. Yes, sir.

Senator FERGUSON. Have you got a contract on that?

Mr. NELSON. I am not sure whether all the contracts have been signed as yet.

Senator FERGUSON. What is it, a fixed fee contract?

Mr. NELSON. Yes, sir.

Senator FERGUSON. Do you know how long you have had that contract? How long have you been here?

Mr. NELSON. I have been here since the latter part of November, not at Whitehorse, but on the job.

Senator FERGUSON. On the job. How many men have you up here from Standard Oil?

Mr. NELSON. We have five on our consulting services contract, plus a great many more on the operating contract. I don't know exactly how many that is.

Senator FERGUSON. What do you mean by the operating contract?

Mr. NELSON. There are two contracts that we have with the United States. One calls for the operation of the facilities and the other calls for consulting services on the design of the facilities.

Senator FERGUSON. You are satisfied with both contracts? I mean with the design of the material, the plant?

Mr. NELSON. We have approved the drawings, and so far as I know we are satisfied.

Senator FERGUSON. Was this your plant before it was moved up here?

Mr. NELSON. No, sir.

Senator FERGUSON. Have you gone over the field to know that the present wells will supply this plant fully?

Mr. NELSON. No, sir.

Senator FERGUSON. Has anyone in your company gone over that, or aren't you concerned with that?

Mr. NELSON. Not to my knowledge. We are not concerned with that phase of it.

Senator FERGUSON. So you don't know whether they need more wells at Norman Wells to supply this refinery or not.

Mr. NELSON. That is correct.

Senator KILGORE. From your experience, what should be the operating cost of a line of that length?

Mr. NELSON. I don't recall the figure. It has been estimated and is available in the records.

Senator KILGORE. In Washington?

Senator FERGUSON. Has that figure been furnished to Washington?

Mr. NELSON. I am not sure as to that. It has been furnished to the division engineer.

Senator KILGORE. Then if I understand your figures on this, this plant will produce just about enough gasoline to furnish fuel for one or two motor bombers through a day, wouldn't it?

Mr. NELSON. I don't know as to that.

Senator FERGUSON. In other words, you don't know how much a motor burns in a day.

Mr. NELSON. No; that is correct.

Senator FERGUSON. A two-engine plane?

Mr. NELSON. That is correct.

Senator KILGORE. Well, a DC transport uses 85 gallons an hour. How many hours could you keep a DC transport in the air on the total product of this refinery of 100-octane gas?

Mr. NELSON. Well, that is about 2 barrels an hour, which would keep that plane in the air for 240 hours for each day of production of the refinery under stage 2.

Senator KILGORE. That would be, on normal usage, the equivalent of about 40 planes, figuring on 6 running hours a day, which would be about the normal time it would run.

Mr. NELSON. Yes; that is correct.

Senator FERGUSON. Now, how many days' output could you transport into our ports over here, Skagway, in one tanker?

Mr. NELSON. I don't understand that question.

Senator FERGUSON. Well, a tanker holds how many barrels?

Mr. NELSON. They will vary up to, say, a hundred thousand barrels for a large ship.

Senator FERGUSON. You are getting how much gas over here now by the pipe line from Skagway?

Mr. NELSON. The pipe line from Skagway has a present capacity with one station operating of 2,600 barrels per day.

Senator FERGUSON. That could all be 100-octane?

Mr. NELSON. Yes, sir.

Senator FERGUSON. Is that running all the time and being used now here?

Mr. NELSON. That plant is being operated when there is gasoline to pump.

Senator FERGUSON. Well, how much of the time do they have gasoline to pump?

Mr. NELSON. I don't have the records on that in my mind, but there have been, oh, five or six cargoes received and pumped over since the line was placed into operation.

Senator FERGUSON. Have you ever figured out what the cost of gasoline was by amortizing this pipe line, the cost of laying, the cost of the refinery here, per barrel?

Mr. NELSON. No, sir.

Senator FERGUSON. But you have given us about the length of the life of the plant, and all.

Mr. NELSON. That is simply my guess on the physical life of the plant, based on good maintenance practice.

Senator FERGUSON. What is the capacity of this plant if you had the oil here? What is the capacity of the plant?

Mr. NELSON. You mean of the refinery?

Senator FERGUSON. Yes.

Mr. NELSON. Three thousand barrels per calendar day.

Senator FERGUSON. That is all it will produce, no matter how much oil you can get here?

Mr. NELSON. That is the designed capacity.

Senator FERGUSON. Now, have you any greater capacity in that pipe line than 3,000?

Mr. NELSON. We designed, or rather the pipe line was designed on the basis of 3,000 barrels per calendar day to be delivered over the line at an operating temperature of minus 10° F.

Senator FERGUSON. What can you do at 70 below?

Senator KILGORE. Minus 70.

Mr. NELSON. Minus 70 for the oil?

Senator FERGUSON. Yes; the temperature outside; your oil is on top of the ground.

Mr. NELSON. If the oil drops to minus 70, the capacity of the pipe line will be reduced very sharply.

Senator FERGUSON. Do you know what the temperature is at Norman Wells?

Mr. NELSON. My information is that the temperature of the oil in the tanks, the minimum temperature of the oil in the tanks last year was minus 18.

Senator KILGORE. Well, in transit through those lines, if the temperature should drop, say, to minus 40, what effect would that have on the oil in the line, the atmospheric temperature?

Mr. NELSON. The effect on the quality of the oil?

Senator KILGORE. On the rate of flow.

Mr. NELSON. It would drop off very sharply.

Senator KILGORE. And if it goes down to minus 70 it will drop still more sharply?

Mr. NELSON. That is correct.

Senator KILGORE. And wouldn't you get a lot of paraffin in those lines, too, with that drop?

Mr. NELSON. We expect to have wax deposited in the lines.

Senator KILGORE. Aren't you going to have to clean those lines quite frequently to get the wax out?

Mr. NELSON. We expect to run pipe line scrapers through the lines at whatever intervals may be required in order to keep the lines clean.

Mr. HALLEY. Are you personally familiar with the test on the pour points of that oil?

Mr. NELSON. I have seen the reports concerning the pour point of the oil.

Mr. HALLEY. Who made such tests?

Mr. NELSON. Such tests have been made by various parties, including the Standard Oil Co. of California, Imperial Oil Co., the University of Alberta, and the Bureau of Standards, I believe.

Mr. HALLEY. Can you summarize the results of those tests which you have seen?

Mr. NELSON. Yes; those tests show that the oil has a pour point of below minus 70, has a viscosity of 275 seconds Saybolt Universal at minus 10; in other words, this oil is a perfectly pumpable oil at the temperature that we would anticipate to have on this pipe line.

Mr. HALLEY. When were these tests completed?

Mr. NELSON. My recollection is that the most recent one was made in December of 1942.

Mr. HALLEY. When was the first test completed?

Mr. NELSON. Roughly, a year before that, I would say.

Senator FERGUSON. How many men does the Standard Oil Co. intend to employ to operate the line and the refinery?

Mr. NELSON. We intend to have a total of 161 men on the refinery, and on the crude line.

Senator FERGUSON. Yes.

Mr. NELSON. I don't have that figure here, but it will be something on the order of perhaps a hundred men.

Senator KILGORE. That would include your line walkers and maintenance men, too?

Mr. NELSON. That would include the maintenance men and line walkers; yes, sir.

Senator KILGORE. You will have to have a telephone line along there, too, won't you?

Mr. NELSON. Yes, sir; we will, but I am not sure that we will be called upon to maintain the telephone line.

Senator KILGORE. The Government will build the telephone lines. You won't build it. It isn't part of your contract.

Mr. NELSON. Our contract doesn't call for any construction.

Mr. HALLEY. That is all.

Senator KILGORE. Let's ask General O'Connor a question right now. General O'Connor, do you know a man by the name of Sam Houston, a geologist, at Norman Wells?

General O'CONNOR. No; I do not.

Senator KILGORE. Have you ever heard of him?

General O'CONNOR. I have not. I don't know the geologists over there.

Senator FERGUSON. Do you know a Captain Wheatley?

General O'CONNOR. Westling. I know Captain Westling; yes.

Senator KILGORE. Let's get that into the record for General Worsham. You know, then, Captain Westling?

General WORSHAM. Westling, W-e-s-t-l-i-n-g.

Senator KILGORE. But you don't know without consulting the records whether there is a gentleman by the name of Sam Houston there?

General WORSHAM. No, sir; I do not. He could be there without my knowing it. There are 12 geological parties.

Senator KILGORE. Do you know a supply man who supplies acids and other oil-well supplies in there, has been there for some time, a salesman?

General WORSHAM. I wouldn't know him by that description.

Senator KILGORE. A tall, red-headed fellow with curly hair?

General WORSHAM. No, sir; I haven't seen him.

Senator FERGUSON. You are familiar with these so-called scouting parties and experimenters?

General WORSHAM. The geologists?

Senator FERGUSON. Yes; the geologists.

General WORSHAM. Yes, sir.

Senator FERGUSON. In fact, they they are working under your orders, are they not?

General WORSHAM. Under my supervision. They are working immediately under Captain Westling, who is the area engineer at what we call the Norman Wells area, and then his immediate superior is the district engineer at Edmonton, and I supervise that district and five other districts.

Senator FERGUSON. Have you given instructions as to how they were to go out to look for oil?

General WORSHAM. We gave them an area in which they should operate.

Senator FERGUSON. What is that area?

General WORSHAM. That area in general, as I explained before, extends from Fort Norman to Norman Wells, which is a little over 50 miles, and on each side of the Mackenzie River.

Senator FERGUSON. How wide a strip?

General WORSHAM. About 50 miles.

Senator FERGUSON. So they have got 50 by 50.

General WORSHAM. Yes, sir. I am giving this—well, yes; and then north to Hoosier Ridge.

Senator FERGUSON. How far is that?

General WORSHAM. That is about 35 miles north of Norman Wells. Now, I am giving that from memory. I have a map that shows the area that has been covered.

Senator KILGORE. General, would you consult your records and advise if there is such a man as Sam Houston on the pay roll?¹

General WORSHAM. Yes, sir. I think I could find out.

Mr. HALLEY. In the meantime I think we should be prepared to go, since the flying time is getting rather late.

General LOWE. We have three P. R. A. men who have been waiting out there for quite a while.

Senator FERGUSON. They can testify in Washington. MacDonald will have everything in Washington.

(Whereupon, at 4:15 p. m., the hearing adjourned.)

¹ Under date of June 15, 1944, Lt. Col. Miles H. Knowles informed the committee that: "General Worsham advises that Mr. Sam Houston was district geologist for the Imperial Oil Co. at Norman Wells from April 1, 1943, to April 27, 1944. He was in charge of field geology, including field exploration and worked under the immediate supervision of Dr. Theodore Link. His pay was \$600 per month."



INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

TUESDAY, OCTOBER 26, 1943

UNITED STATES SENATE,
SUBCOMMITTEE OF THE SPECIAL COMMITTEE INVESTIGATING
THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

EXECUTIVE SESSION ¹

The meeting of the Subcommittee on Canal Projects was called to order at 4:15 p. m. by Senator Harley M. Kilgore, in the Post Offices and Post Roads Committee room of the Capitol.

Present: Senators Harley M. Kilgore and Homer Ferguson.

Present also: Rudolph Halley, executive assistant to the chief counsel. Representing the United States Army: Julius H. Amberg, special assistant to the Secretary of War; Brig. Gen. W. E. R. Covell, United States Army; Brig. Gen. L. D. Worsham, United States Army; Brig. Gen. Walter Pyron, United States Army; Brig. Gen. Howard L. Peckham, United States Army; Col. B. C. Snow, United States Army; Lt. Col. J. M. Wild, Corps of Engineers; Lt. Col. H. A. Friedlich, United States Army; Maj. Benjamin F. Hake, Quartermaster Corps; Maj. O. P. Easterwood, Jr., Corp of Engineers; Maj. Howard C. Pyle, Quartermaster Corps; Maj. Lee E. Scheid, United States Army; and Lt. John H. Tolan, United States Navy.

TESTIMONY OF JULIUS H. AMBERG, SPECIAL ASSISTANT TO THE SECRETARY OF WAR

ARMY'S JUSTIFICATION FOR THE PROJECT ²

Mr. AMBERG. I understand this is an executive session and I am appearing before you today at the request of the Under Secretary of War and want to thank you for the permission which you have granted the War Department to present to you its views with respect to the project for the development of oil resources at and near Norman Wells on the Mackenzie River in the Canadian Northwest Territories, the provision for the transportation thereof by pipe line to Whitehorse in the Yukon Territory—

Senator KILGORE (interposing). That is also in Canada?

Mr. AMBERG. That is also in Canada—the erection of a refinery for the production of aviation gasoline and other petroleum products at Whitehorse and the provision of distribution or product lines from Whitehorse to Watson Lake in Canada and Skagway and Fairbanks in Alaska. Members of the committee made a trip to Alaska the latter

¹ Publication authorized by the chairman, January 15, 1944.

² In the connection see also supplemental data, appendix pp. 9916-9935.

part of the summer and evinced interest in the project, taking some testimony at Whitehorse. Some witnesses were not available nor were the files of the War Department covering all parts of the project obtainable there.

It was, therefore, the desire of Judge Patterson that the committee permit me, in his behalf, to review the situation and to present to the committee the salient facts in behalf of the War Department. I would like it understood at the outset that I had nothing to do with the authorization of any part of the project or its construction. I do not pretend to be a petroleum expert. I have merely, in behalf of the War Department, endeavored to gather from its files and from consultation with its officers facts from which to give to the committee an over-all statement which no one officer of the many who have worked on different parts of the development could give. We have granted to the committee permission to examine all of our files. In addition, I have brought with me today some officers who, I believe, are in position to answer first hand and with expert knowledge such supplementary questions as the committee may desire to ask. If there are other matters which we are not in position to answer today, we ask the opportunity to appear before you later after the information you wish has been assembled.

I may state that this project I have described is known officially as the Canol project, different parts of it being named in the War Department as Canol No. 1, No. 2, No. 3, and so forth.

Matters involving the various Canol projects—

Mr. HALLEY. Mr. Amberg, before you get into the details, you say that you have accumulated this particular material. I presume, however, that in each case you have checked it with the officer responsible for the particular segment of the material and are in a position to assure the committee that the facts as stated by you are the facts subscribed to by the officers in question.

Mr. AMBERG. I cannot assure you of that in every case. Colonel Wyman, for instance, who was the contracting officer for the greater part of the contracts which have been entered into, is either overseas or on the way overseas. I have not talked to him. I have talked to responsible officers who assure me that the statement that I am making is correct. It has been prepared under my direction and rewritten also with myself present and after consultations with the officers, many of whom you see here today, and some not here today.

Mr. HALLEY. So either from the records or by consultation with responsible officers, you are in a position to say that the facts have been verified by those who would know them personally?

Mr. AMBERG. That is my statement, and there may be an error or additional facts I did not look into, but, as I understand it, what I am telling you today is the view of those responsible officers now available here in Washington, including General Worsham, who has come down from the Northwest Engineering Division.

Matters involving the various Canol projects have been classified by the War Department as secret or confidential for military reasons and, accordingly, I ask the committee to treat any statements made at this hearing as confidential in the first instance. However, if there is any material which the committee desires to have released from this classification, I shall be glad, upon your request, to take specific matters up with the proper authorities to obtain consent to

publicity with respect to that material. It is our intention to give such request most liberal consideration with a view to permitting the committee to make public the greater part, if not all, of the matters pertaining to the project.

GENESIS OF PROJECT

Mr. AMBERG. I want to say at the outset that the Canol projects were not conceived as commercial ventures or as having commercial value. Each was dictated solely by military necessity and the War Department has made no study of the post-war commercial possibilities of any of them. And so I have no intention of justifying the enterprise from the standpoint of costs per barrel of petroleum or its products as compared with what it would have cost if produced and transported in some other manner.

After Pearl Harbor, as you know, control of the Pacific was not in the hands of this country for the time being. There was no assurance that Japanese submarines and other naval craft would not be able to destroy tankers and ships sailing between our west coast and Alaskan ports.

It had been planned to defend Alaska mainly by air power and, accordingly, gasoline was the keystone of that defense. Our fighter and bomber planes must reach their bases in Alaska. In addition, fighters and bombers must fly to Fairbanks and there be turned over to the Russians for transport to the Russian front against Germany. These planes were being flown from this country to Edmonton and thence, along a line of existing air fields located between Edmonton and Fairbanks via Whitehorse. Edmonton is 1,600 miles from Fairbanks. The fighter planes, particularly, and, to a somewhat lesser extent, the bombers and transport and cargo ships, required servicing en route. Supplies of gasoline, oil, parts and the like, had to be flown into the various service air fields along the line of flight. This required use of planes which could better be used for other purposes and, further, only small tonnages could be carried by air. With this in mind, it was determined to construct the Alaska Highway, from Dawson Creek (the rail head) to Fairbanks, to connect the chain of air fields being used by our air transport and ferrying commands. The highway was to serve, primarily, as a supply line for the air fields and, secondarily, as an emergency land route for the supply of troops in Alaska.

It was essential to obtain supplies of gasoline for delivery to these air fields along the line of the highway so far as possible without use of the sea route. In any event, the water route terminated at Skagway, 110 miles from Whitehorse. The sea route was unsafe and ships could not deliver gasoline along the highway. Further, oil reserves in California were, as was common knowledge, being rapidly depleted and a large part of any domestic supply of gasoline to Alaska would have to come from Gulf ports, requiring either a long and then dangerous voyage, as well as use of a number of the short supply of tankers, or a long train haul to the west coast over our already congested railroads and use of tank cars which were likewise scarce.

Serious consideration was being given to increasing refinery capacity in Venezuela and other South American countries in order to

relieve California shortages. The port of Skagway was congested, with greater congestion in prospect. The narrow-gauge, single-track railroad from Skagway to Whitehorse was loaded to capacity with necessary war matériel. Thus it was obvious that any additional supply of gasolines furnished to points in or near Alaska and without use of the sea route was of the greatest strategic importance, and might, in fact, be the determining factor in the defense of Alaska. It was this military necessity which dictated the Canol projects.

Mr. HALLEY. Would you prefer to finish your statement?

Mr. AMBERG. I would prefer to finish it and then you can ask me any questions and I will endeavor to have the answers furnished either by myself or others present.

A distribution system was a sine quo non and oil supplies, in addition to those which could be furnished from the United States, were vital.

Now, gentlemen, that was the situation in the winter and spring of 1942, when this project was determined upon by the Army Service Forces, then called the Services of Supply, and the initiative was taken to start the project.

In my review of the situation I want to put you back in the situation in which the Army found itself in the spring of 1942, about April, I believe, when this Canol project was determined upon, for the supply of petroleum products to the Alcan Highway, as it was then called.

THE PRESENT SITUATION

Mr. AMBERG. At the present time the sea route to Alaska is relatively safe. However, the supply of tankers and tank cars is still short. Every available tanker can be used with great effect on other Pacific fronts, as well as in conjunction with operations in the European and other theaters. Our railroads are still congested and the supply of tank cars inadequate. It is, further, no military secret that we hope at the earliest practicable moment to launch air attacks on the Japanese mainland. One obvious base for such an attack is Alaska. It is apparent that enormous quantities of gasoline must be available if such an attack is made. The closer the source of any part of this required supply of gasoline is to the bases from which the attacks will be launched, the greater chance there is for success.

Now, I don't want you to understand that the amount of oil obtainable from this project, as at present being constructed, is at present a major part of the supply for any offensive operations, or defensive operations, for that matter, in Alaska or in the Aleutians. Its first and primary purpose was to supply the fields along the Alcan Highway. However, it is a contribution to the entire oil supply for whatever military picture may develop.

Quite apart from any other considerations, it is indisputable that the existing United States oil fields are being rapidly depleted. As late as the 24th of June of this year, Secretary Ickes wrote to Admiral Leahy:

Most of the Nation's oil fields are already being produced at capacity. The only fields capable of producing at substantially higher rates are located in the extreme southwest where this additional capacity has not been available because of limited transportation facilities * * *. Moreover, it is anticipated that essential requirements for petroleum will continue to increase during 1944,

causing a shortage of petroleum unless, as you have indicated, the supply is augmented.

An adequate supply of petroleum can be maintained only *by the discovery of new petroleum reserves* and by the orderly drilling of both presently known and *newly discovered* oil fields.

* * * * *

In addition to making materials available for carrying on such programs, *further effort must be made to stimulate the discovery of new fields.* Since 1938 we have been consuming our petroleum resources at a rate almost double that at which reserves are being discovered. This condition makes it extremely difficult to maintain our present or an increased production rate for any sustained period. [Italics supplied.]

(The letter referred to was marked "Exhibit No. 1086," and is included in the appendix on p. 9789.)

Senator KILGORE. Do you have the full text of that letter?

Mr. AMBERG. Has anyone got it here for me?

Colonel FRIEDLICH. I have a copy of it.

Mr. AMBERG. Do you want it right now, sir?

Senator KILGORE. Go ahead. I should like to see it, however. [Copy of letter handed to Senator Kilgore.]

Mr. AMBERG. Recent estimates made by the Army and Navy Petroleum Board indicate an average daily deficiency in the petroleum supply in continental United States (if storage is not used or unexpected new fields are not discovered) of three-quarters of a million barrels per day in 1944, and the Board has concluded that any deficit must be reduced by development of sources of supply outside of the United States. For the current quarter of this year, it is estimated that there will be a deficiency of 171,000 barrels of crude oil per day on the Pacific coast alone; Pacific coast requirements total 1,042,000 barrels per day.

That would be the deficiency if no oil were brought in from sources outside the United States, as I understand it from the Army and Navy Petroleum Board.

The Operations Division of the General Staff made a complete review of the Canol projects in the summer of 1943, and on July 26, 1943, the Deputy Chief of Staff concurred in Operations Division's conclusions that the world-wide oil and tanker shortages dictated that Alaska be self-sufficient insofar as possible, that military necessity then existed for the provision of aviation gas to support a possible major air offensive against Japan, and that the Canol projects would be a potential aid to this offensive. With these and other considerations in mind, the Operations Division of the General Staff determined that the Canol projects, as then being carried on, should be completed.

Now in this last I have given you the picture as it is as of the present time and I believe as you already know, as a result of that study, I believe in June, the installation of the Houdry process at the refinery was postponed, and I believe also the projected product pipe line from Fairbanks on westward to Tanana was likewise deferred or abandoned for the time being.

THE PROJECTS

Mr. AMBERG. The Canol projects may be divided into two parts:

(1) The distribution system between Skagway, Whitehorse, Watson Lake, and Fairbanks; and

(2) Oil production and exploration near Norman Wells, the Whitehorse refinery and the connecting pipe line.

DISTRIBUTION SYSTEM

Mr. AMBERG. So far as I know, there has been no serious question of the military need for the distribution system. In a word, that system consists of storage facilities at Prince Rupert, storage capacity and petroleum docks at Skagway, a 4-inch pipe line along the line of the White Pass and Yukon Railroad through Carcross to Whitehorse, with a 2-inch branch pipe line from Carcross to Watson Lake, at which point is located one of the air fields along the Alaska Highway. Further, this system includes a 3-inch pipe line from Whitehorse to Fairbanks to serve the air fields in Alaska, located along the highway between these two points. It was originally planned to continue the pipe line from Fairbanks to Tanana, but this portion of the project has been deferred.

Standing alone, the distribution system will permit delivery of oil and oil products from Skagway, at the head of the inside passage from our west coast, to air fields along the Alaska Highway between Watson Lake and Fairbanks and to fields below Watson Lake by trucks. Crude oil and refined products can likewise flow from Whitehorse to Skagway for shipment from there to other strategic ports on the coast of Alaska. This distribution system, it is estimated, will cost approximately \$34,806,000, of which amount about \$26,000,000 will have been spent by November 1. The Skagway-Whitehorse portions will be 98 percent complete by November 1, the Carcross-Watson Lake parts, 85 percent, and the line from Whitehorse to Fairbanks, 64 percent.

Now, that is the distribution system, gentlemen, and had there been no development at Norman Wells, no pipe line from Norman Wells to Whitehorse, and no refinery at Whitehorse, we believe this distribution system would have been necessary anyway and would have served the purposes which it now serves, except that the products would have had to be delivered at Skagway and it would not, of course, serve the purpose in the reverse direction of sending refined oil from Whitehorse down to Skagway.

OIL PRODUCTION

Mr. AMBERG. Now we come to the second part of the project, oil production.

The oil-production project is based upon the oil fields near Norman Wells on the Mackenzie River. Imperial Oil, Ltd., a Canadian subsidiary of the Standard Oil Co. of New Jersey, discovered oil there in August of 1920. Until 1932, when radium and silver discoveries in the vicinity provided a market, there was no demand for this oil. The Imperial Co. had, prior to 1942, drilled four producing wells having a total production of 350 barrels per day, and had built an 800-barrel-per-day refinery, which manufactured medium-grade aviation gasoline and other products during the summer months.

I think that 350 may be somewhat conservative. I have seen some statement of a somewhat larger amount.

There was no occasion for refining at any other period of the year nor for further exploration since the then output of crude oil was sufficient to supply demand. The oil produced in this field is of high grade, has a very low pour point, estimated as low as 70° F. below zero, making possible pipe-line transportation under Arctic winter conditions.

As early as February of 1941 Norman Wells oil possibilities had been called to the attention of the War Department and had been considered. After that date and up to the present time there has been further exploration in the district, and the prospects now are that there exists a very large reservoir from which it is estimated ample supplies of oil can be obtained. No other known oil resources were available to serve the purpose the Army had in mind except those at Norman Wells.

There have, to be sure, been prospects of oil in Alaska and small quantities were actually produced near Kattalla. The Kattalla operation, however, was abandoned in 1933. Kattalla is along the coast of Alaska, northwest of Juneau.

There are unproved areas for oil production located on the Alaskan Peninsula and near Point Barrow in the far north. There was, however, no likelihood of obtaining oil in quantities from Alaska within a short time, as these regions had been practically unexplored, and, if the oil is there, the difficulties involved in its utilization would probably have been greater than they have been at Norman Wells. The roads, which would have been required, would have been available to the Japanese in the event of any landings on the Alaskan coast. The transportation problems, if water routes were used, would have been complicated without considering the danger of enemy action.

By the way, that is particularly true of oil if found up near Point Barrow beyond the Brook's range on the Arctic Ocean or near the Arctic Ocean.

It was further estimated that oil could be obtained from the Norman Wells district 1 to 2 years sooner than from any other point in the Northwest. In the early part of 1942 the fact that any fields which might have been developed along the coast of Alaska in the future were open to bombing attacks by the Japanese made them undesirable even if the uncertainties and the time element did not prohibit their substitution for the Norman Wells project.

In other words, in addition to building pipe lines or providing other means of transportation and drilling wells, there would have had to be considerable exploratory work done in other locations in Alaska, with the possibility of not obtaining oil, or, if it was obtained, obtaining it after considerable delay, which would not be encountered at Norman Wells.

As part of the oil-production plan, it was determined to purchase in the United States an available refinery, not being used in our then oil program, transport it to Whitehorse and there re-erect and redesign it, and, by this means, refine crude oil brought in from Norman Wells by means of a pipe line. Before determining upon Whitehorse as the site of the refinery, the relative advantages of Fairbanks and Whitehorse had been considered. Fairbanks is at the extreme northwest end of the Alaska Highway and a pipe line from Norman Wells would have been at least 150 miles longer than a line

from Norman Wells to Whitehorse. Delivery of oil, in an emergency, to deep water from a Fairbanks refinery would require a pipe line paralleling the railroad to Whittier, a distance of approximately 350 miles, as against 110 miles from Whitehorse to Skagway.

Whittier, I believe, is about 15 miles from Anchorage.

Senator KILGORE. Forty.

Mr. AMBERG. And is where open water may be encountered throughout the year, which I understand is not the case at Anchorage.

Whitehorse is at the head of navigation on the Yukon River system and thus has water access to most of the important interior and West Pacific coast Alaskan settlements. Most important, Whitehorse is located nearly midway on the Alaska Highway and distribution through pipe lines or trucks from Whitehorse could be made with the least expenditure of manpower, trucks, and lines. In an emergency, the refinery at Whitehorse could deliver petroleum products by pipe line to Skagway where they would be readily available to the Army or Navy for movement by vessel to any critical point in the North Pacific.

It is a matter of judgment, gentlemen. It may be—and there are arguments which can be made also in favor of Fairbanks. All I can say is that in weighing the different arguments, the Army reached the conclusion that Whitehorse was the more feasible place as compared with Fairbanks.

Thus, apart from the distribution features of the project, Canol consists of the wells, terminal tanks in the field, exploration in the vicinity for additional oil, a 4-inch pipe line from the field running about 625 miles to Whitehorse, and the construction of the refinery at Whitehorse. At the present time, production of crude in excess of 3,000 barrels per day is assured and exploration and drilling is continuing to discover a field capable of producing 20,000 barrels a day as a target.

I may say that at one time fear was expressed in various quarters that we would not obtain a production of 3,000 barrels a day and that the project would be a failure in that regard. I am glad to say that we have such production assured, as I understand it, with actual wells drilled, and are continuing with exploration and drilling toward a larger target, as I have mentioned.

I am advised that there are good prospects of obtaining this 20,000 barrels and that there is a substantial reserve in the field. The Norman-Whitehorse pipe line will cost approximately \$31,000,000, of which amount about \$24,300,000 will have been expended by November 1. The line will be 58 percent completed on that date. The exploration and drilling operations (which may be curtailed at any time) and the required construction in the field will cost about \$17,200,000, of which \$7,200,000 approximately will have been spent on November 1. The refinery is 43 percent completed and will cost \$24,400,000 of which \$16,770,000 will have been expended by November 1.

I may say that these percentages, these last ones I have given, in the neighborhood of 50 percent, one 58 percent, and the other 43 percent, are not an indication of the remaining time required to complete these projects, which were started in the spring of 1942, but enough work has been done in the way of getting material to the scene and building roads which may be necessary so that it is hoped that the project, as far as the pipe line is concerned, will be com-

pleted, I believe, by the first of the year or thereabouts, and the refinery and operation some time in the late winter or early spring.

THE CONTRACTS

Mr. AMBERG. Substantially all of the work in connection with the Canol projects is being done under C. F. F. contracts. That means, of course, cost-plus-fixed-fee contracts.

Under the contract with Imperial Oil, the United States will purchase oil from wells drilled by the company prior to 1942, at \$1.75 (Canadian funds) per barrel as long as they are operated at company expense; this oil may, at our option, be processed at the company refinery, located in the field, and there is an additional charge of 65 cents per barrel for the cost of such processing.

That oil processed there would be for use in connection, I take it, with our operations along the Mackenzie, in the neighborhood of Norman Wells, and I believe there is a provision in the contract, which I have not mentioned, that the Imperial Oil, out of its wells which it had in 1942 and its own refinery there, may reserve sufficient to meet its local trade, as you might call it, which it already has.

(The Imperial Oil contract referred to was marked "Exhibit No. 1087," and is included in the appendix on p. 9790.)

Senator FERGUSON. Do you intend to use the small refinery that had been at Norman Wells?

Mr. AMBERG. That is our right to do so, and perhaps one of the officers present can tell us.

Senator FERGUSON. That is what you pay 65 cents a barrel for?

General WORSHAM. Yes, sir. We are using it. We have used it for both motor gasoline and Diesel fuel.

Senator KILGORE. That is a fixed fee, and you add operating expense?

General WORSHAM. We purchase that and pay 65 cents for their processing.

Senator KILGORE. Do they process it?

General WORSHAM. They process and handle it.

Mr. AMBERG. We may just use—

Senator KILGORE (interposing). What are you getting, Diesel?

General WORSHAM. Yes, sir; and also motor.

Senator KILGORE. For use in building pipe lines?

General WORSHAM. And other works.

Mr. AMBERG. It is to be noted that the oil from the company's preexisting wells is in addition to the oil contemplated to be taken out of new wells. As to oil, produced from wells drilled under the contract, the Government will pay \$1.25 per barrel (Canadian) until a total of 1,500,000 barrels has been delivered from both preexisting and new wells.

At a capacity of 3,000 barrels a day, I think it takes approximately a year and a half to cover a million five hundred thousand barrels to be paid for at the \$1.25 rate per barrel.

Thereafter the Government will pay 50 cents per barrel for oil produced—

Senator FERGUSON (interposing). Would you mind being interrupted there? What is that work?

Mr. AMBERG. What work?

Senator FERGUSON. That they are doing now.

Mr. AMBERG. It is covered by the contract. They are doing the drilling and some of the exploration work, and——

Senator KILGORE (interposing). They are the contractors for the drilling?

Mr. AMBERG. They do at least most of the drilling.

General WORSHAM. The Imperial Oil Co. has drilled the producing wells to obtain the 3,000 barrels per day. They also have other work that they are doing with their four-well drilling, set-out drilling, to determine the full area of the field.

Senator KILGORE. For all of which we are paying.

Mr. AMBERG. That is right.

Senator FERGUSON. They are paying now the actual cost of it?

Senator KILGORE. We are paying.

General WORSHAM. Right.

Colonel WILD. This is in effect to——

Senator FERGUSON (interposing). Are they drilling on cost plus fixed fee?

General WORSHAM. Yes, sir.

Senator FERGUSON. What is the fixed fee?

General WORSHAM. One dollar on one contract and \$1 supplemental—\$1 on supplemental agreement.

Senator FERGUSON. What do you mean, a dollar?

Mr. AMBERG. \$2 all together, is their fee, but they do, of course, sell the oil to us.

Senator KILGORE. \$2 total.

Mr. AMBERG. Total fixed fee for the work they are doing plus all the cost of it which is reimbursed to them. That is for the whole contract.

Senator KILGORE. \$2 for what?

Mr. AMBERG. In effect it is a nominal equivalent of no fee.

Senator FERGUSON. Of all the contracts? Do you have them?

Mr. AMBERG. We will have them available. They are quite complex contracts and require quite detailed, thorough examination.

Now, after this \$1.25 a barrel for oil produced from wells drilled under the contract, after that is continued for a total of 1,500,000 barrels from preexisting and new wells, thereafter, the Government will pay 50 cents per barrel for oil produced from wells drilled under the contract and will credit 75 cents per barrel to the costs of work performed by Imperial Oil under the contract (and reimbursed to the company by the Government) until the full amount of such costs has been covered by such credits. After the war and upon termination of the contract, Imperial Oil is entitled to receive title to all property, paid for by the above-mentioned credits against oil delivered and may also keep all wells which it drills. In other words, when they have reimbursed us through our keeping the 75 cents, they get title to what has thus been reimbursed.

Mr. HALLEY. After we have been fully reimbursed, what price do we pay for the oil?

Mr. AMBERG. That comes in the last part of this.

Senator FERGUSON. We may also keep the wells which it drills providing the amount of oil produced pays for them.

Mr. AMBERG. It has the wells in any event and the necessary casing in the wells.

Senator FERGUSON. It keeps the well whether or not it is ever paid for; in other words, if this were to cease today, they would own all the wells.

Mr. AMBERG. It is, in part, the Canadian Government's. That is a matter of relationship between the Canadian Government and Imperial. At least the United States would not own them.

Senator FERGUSON. Is anybody else drilling wells besides Imperial?

General WORSHAM. The Noble Drilling Co. is. They are the wildcaters.

(The contract referred to was marked "Exhibit No. 1088," and is included in the appendix on p. 9808.)

Senator FERGUSON. We are paying for the wildcatting, on a cost-plus contract.

Mr. AMBERG. That is covered in the contract.

After the Government shall have been repaid by such credits the full amount for which it may have initially reimbursed Imperial Oil, it is required to pay 50 cents per barrel for all oil produced from the wells drilled under the contract and to set aside 75 cents per barrel in a separate fund. This fund will belong to the company at the end of the war but it is given an option to purchase all other property in the field, for which the Government has not been reimbursed by oil credits, at a price to be agreed upon. This price will be deducted from the fund and the balance of the fund paid to Imperial Oil or, if Imperial Oil does not exercise its option to purchase, the entire fund is required to be paid to it.

In other words, it gets the whole \$1.25 after we are reimbursed those payments we have made to the Imperial for the work they have done under the contract, but 75 cents of it is laid aside to use as an option-exercising fund, if Imperial desires to buy other property owned by the Government, not reimbursed under the contract at an earlier date.

It should be noted that all payments for oil are required to be made in Canadian funds, now at a discount.

Senator FERGUSON. What is that discount?

Mr. AMBERG. It is around ten.

General WORSHAM. Thirteen.

Colonel WILD. About a dollar thirteen, or two twelve.

Senator FERGUSON. What size barrel do you use?

General WORSHAM. Forty-two.

Major PYLE. Forty-two U. S. gallons.

General WORSHAM. It is not the Canadian Imperial gallon; no, sir.

AGREEMENT WITH CANADA

Mr. AMBERG. The Canadian Government has agreed with our Government to acquire land and necessary rights-of-way involved in the projects, title, however, to remain in the Crown. As I understand it, the Canadian Government is paying for any lands or rights-of-way, or furnishing it if it is already Crown land. It also agreed to waive, during the war, import duties, sales taxes, territorial taxes, license

fees, and other charges on equipment and supplies used in the execution or maintenance of the project by the Government; and to remit, during the war, royalties on oil production and income tax on the income of persons resident in the United States and employed on the construction or maintenance of the project.

(The United States-Canadian agreement referred to was marked "Exhibit No. 1089," and is included in the appendix on p. 9827.)

Senator FERGUSON. Now, just a minute. If a company is making money out of these projects, what happens to the income tax?

Mr. AMBERG. The income tax, the waiver or remitting of income tax only applies to the income of Americans who are up there working on the project.

Senator FERGUSON. What happens to the income tax? Do they deduct it?

Mr. AMBERG. They don't pay any Canadian tax.

Senator KILGORE. Do they pay American taxes?

Mr. AMBERG. This applies only to Canadian taxes.

General WORSHAM. They pay American taxes.

Mr. AMBERG. But Canada does not charge an income tax on income made in Canada which I believe but for the provision of this agreement Canada would collect.

Canada has also agreed to permit drilling of exploratory wells in an area bounded on the north by the Arctic Ocean, on the east by the one hundred and twelfth meridian, on the south by the sixtieth parallel, and on the west by the Continental Divide and the Alaska-Canadian border, with the right in our Government to make use during the war of any petroleum sources which may be discovered, subject to Canadian regulations governing such operations.

I may say that this area covered by this agreement is a very large area, as the sixtieth parallel is, I believe, the northern boundary of Alberta and British Columbia, and approximately goes through Watson Lake and over to Fort Smith on the Slave River at the other side, and the one hundred and twelfth meridian is, as I understand it, well east of the Mackenzie River and Norman Wells district.

Exploration activities are now being carried on close to Norman Wells and detailed geological and geophysical exploration has been confined to territory 50 miles north and south of Norman Wells and 25 miles on either side of the Mackenzie River.

General Worsham tells me that in his testimony given to the committee at Whitehorse,¹ he may have given the impression that no activity by way of exploration had been undertaken at all beyond this 50-mile distance, and he asks permission to add a few words now.

General WORSHAM. Reconnaissance trips were made by geologists and the purpose of that was that if we didn't find the oil required in the directive, we then would go out later and make our geological maps and use other methods to get more detailed information.

Senator FERGUSON. General, do you know why you did not know that fact when we were in Whitehorse?

General WORSHAM. Because I knew they were making this detailed survey at this part. I mean I was limited to this knowledge.

Senator FERGUSON. Who had the right to authorize such activity?

¹ Supra, p. 9321.

General WORSHAM. The district engineer. Under the agreement we could go out anywhere.

Senator FERGUSON. I appreciate that but you had the right to authorize them to go out.

General WORSHAM. The district engineer and the area engineer, Captain Westling.

Senator FERGUSON. We were insistent in our attitude that you were doing that—

General WORSHAM (interposing). I know you were.

Mr. HALLEY. You think that an officer of the rank of captain authorized, had a full knowledge of, these exploration parties?

General WORSHAM. I could have had the knowledge. It wasn't being concealed from me, but I didn't know it at that time. Parties of three men—one I found out subsequently—flew in to the Peel River.

Mr. HALLEY. And this investigation was going on.

General WORSHAM. It had been going on. Whether or not they were out at that particular time, I do not know.

Mr. HALLEY. Is it still going on?

General WORSHAM. No, because the weather has closed in and they are interpreting their geological data at this time.

Mr. HALLEY. At the time you testified, was that under your general supervision?

General WORSHAM. It was.

Mr. HALLEY. And under officers your subordinates?

General WORSHAM. Yes.

Mr. HALLEY. But it had not come to your knowledge?

General WORSHAM. No, sir.

Colonel WILD. May I call attention to the difference there, a wide difference between a geological party of three people, and a geophysical study, as the General referred to, of the Norman Wells area; and, secondly, may I call attention to the great difficulty had in the transmission of communications in that area, which was well known to General Worsham?

Senator FERGUSON. Don't you think it was rather unusual that the committee heard about the explorations and the General hadn't?

Colonel WILD. No, sir.

Senator FERGUSON. If the communication was so difficult—

General WORSHAM. There was no attempt to conceal any evidence. That is what I want to make plain to you, at that time.

Senator FERGUSON. We just want to know why you didn't have it.

General WORSHAM. I knew we were authorized to have parties anywhere over this place, and I had just had a report of that on the detailed examination and that was what I was most interested in.

Mr. AMBERG. As to the refinery and the pipe lines in Canada, it is agreed between the two Governments that at the termination of the war these properties shall be valued by two valuers, one named by the United States, and one by Canada, who shall, if they disagree, appoint an umpire. The Canadian Government is given the first option to purchase these properties at the amount of the valuation fixed by this Board as the then commercial value of the pipe line and refineries.

Senator FERGUSON. May I interrupt you?

What value would they have if they were on the Crown lands?

Mr. AMBERG. We have been given permission to build them there, and the Crown has agreed to furnish the right-of-way.

Senator FERGUSON. For how long?

Mr. AMBERG. I don't think there is any limitation to that because it is further provided in the agreements with Canada, as you will see in a moment, that they may be sold to a third party.

Senator FERGUSON. And the land used for an indefinite time?

Mr. AMBERG. I don't think it is—the agreement is completely—well, I will—

Senator KILGORE (interposing). What would be the right-of-way suppose Standard of New Jersey goes in and buys that refinery and line, and the war is over; it is on Crown land. Nobody has a deed to it.

Mr. AMBERG. Well, Canada, as I come to the part we are dealing with at the moment, it is expressly agreed that the tearing up of the property will not be done except with the consent of the Joint Board for the Defense of Canada and the United States.

Senator FERGUSON. I am trying to get at how would you place a value of a pipe line or refinery on Crown land, if you didn't have a lease to continue your refinery.

Mr. AMBERG. I think it is understood it would be continued by the Canadian Government.

Senator KILGORE. Is it in the contract?

Senator FERGUSON. Is it in the lease?

Mr. AMBERG. We have the contract here.

Colonel WILD. Would you like to see the international agreements concerning that?

Mr. AMBERG. They will all be made available to you.

Colonel WILD. This is the note from the American Government which was accepted by the Canadian Government, and in that particular connection it says:

My Government—

meaning the United States—

further proposes that the pipe line shall remain its property and shall be operated under contracts with it—

meaning the United States Government—

or by its agents or representatives during the war. It further proposes that at the termination of hostilities the pipe line and refinery shall be valued by two valuers, of whom one shall be named by the United States and one by Canada, with power, if they disagree, to appoint an umpire. The valuation shall be based upon the then commercial value of the pipe line and the refinery, and the Canadian Government shall be given the first option to purchase at the amount of the valuation. If the option is not exercised within 3 months, they may be offered for sale by public tender, with the amount of valuation as a reserve price—

which is what we call down here the upset price.

In the event that neither the Canadian Government nor any private company desires to purchase the pipe line and refinery at the agreed price, the disposition of both facilities shall be referred to the Permanent Joint Board on Defense for consideration and recommendation.

Additionally, it is proposed that both Governments agree that they will not themselves order or allow the dismantling of either the pipe line or the refinery, nor will they allow any company which purchases them so to do, unless and until approval for dismantlement is recommended by the Permanent Joint Board on Defense.

It is understood that if the pipe line or refinery are at any time used for commercial purposes, they will be subject to such regulations and conditions as the

Canadian Government may consider it necessary to impose in order to safeguard the public interest.

(The United States-Canadian notes were marked "Exhibit No. 1090," and are included in the appendix on p. 9830.)

Mr. AMBERG. As I understand the contract—

Senator FERGUSON (interposing). I didn't find anything else yet about the appraisal of the leasehold. Are they going to appraise the pipe line and the refinery?

Colonel WILD. I think you will find the matter is covered in the last few things I read.

Mr. AMBERG. Better read what it says at the early part about furnishing the land.

Colonel WILD. I have that here:

For its part my Government asks the Canadian Government to agree: (a) To acquire any essential land and necessary rights of way that may be involved in the projects (including the settlement of all local claims in this connection), title to remain in the Crown in the right of Canada.

Then it goes on to waive import taxes, and so on. I think that you will agree that the Canadian Government has reserved to itself—

Senator KILGORE (interposing). The right of way.

Colonel WILD. And, further, I think it is clear that the determination of the conditions surrounding the use of the pipe line in its present location will be a matter to be taken up with the Canadian Government by the purchaser after he has purchased the pipe line. Is that your—

Senator FERGUSON (interposing). How can the appraisers ever appraise this line?

Colonel FRIEDLICH. I don't think there is any doubt that the pipe line as it stands at the end of the war, and the refinery as it stands at the end of the war, can be sold to third parties at its commercial value as a pipe line, and as a refinery, if the Canadian Government doesn't buy it and that neither Government will allow it to be torn down.

Senator FERGUSON. Until!

Senator KILGORE. Now, suppose the Canadian Government buys it.

Colonel FRIEDLICH. The Canadian Government agrees it will not tear it down unless that proposition is approved or recommended by the Joint Defense Board.

Mr. HALLEY. What control has either Government got over the source of supply, since the oil is to revert to the Imperial Oil Co.?

Colonel FRIEDLICH. The Canadian Government has—I have heard it and never paid any attention to it—they have some interest in the wells and the royalty agreements and leases made with Imperial Oil.

Mr. HALLEY. And no private party other than the Imperial Oil Co. could buy that pipe line on anything but a scrap basis.

Colonel FRIEDLICH. It is as far from Liverpool to London, as it is from London to Liverpool. I don't believe that Imperial Oil Co. would like to sit there with a lot of oil in the ground and a good pipe line and not use it.

Mr. HALLEY. Didn't they indicate their desire not to develop this at the time we started?

Colonel FRIEDLICH. There was no demand. They developed it to the extent of the demand.

Mr. HALLEY. They showed a reluctance to developing the field beyond that at that time?

Colonel FRIEDLICH. I don't know. They didn't develop it up to 1942 beyond this mining and whatever other demands there were.

Mr. AMBERG. To my mind the Imperial Oil Co. has oil, or it will have oil, to sell, and if they want to keep it in the ground and not sell it, I suppose it is conceivable that a purchaser other than the Imperial Oil Co. would have a pipe line and a refinery with no oil but I assume they would be glad to sell oil.

Senator KILGORE. Let me ask you a question. You can answer it off the record if you want to save yourself embarrassment. Would you buy that pipe line with the other fellow owning the neck of the bottle and owning the oil? Would you bid against him or let him have it for whatever he wanted to pay for it, because he had the only available oil source? I ask that as a pure, straight business proposition.

Mr. AMBERG. I certainly would want to see what I could get the oil for.

Senator KILGORE. You are right, and to see what regulations were contemplated in this international agreement that might be imposed upon your use of that pipe line, and which are so open they can be made prohibitory as to use of the pipe line, as anybody ever engaged in the oil business in a foreign field knows.

Mr. AMBERG. I would assume that the Canadian Government, desiring to have the oil sold and desiring to receive royalties, would be willing to enter into reasonable agreements.

Senator KILGORE. I have a little Mexican oil stock myself.

Colonel WILD. What would they do with the pipe line and distribution system if the chief users were not people like ourselves? The pipe line and distribution system where it is, will not do Canada a lot of good unless they can sell it to somebody else.

Mr. HALLEY. You don't think it would be economically feasible as a venture to cart it from Whitehorse down to the United States after the war and sell it in the United States, do you?

Mr. AMBERG. We have not made, as I have said at the outset, a study of the commercial possibilities of this project after the war. We are thinking, as it is always the duty of the Army to do, about the defense of Alaska and possible offensive operations from that base.

Senator KILGORE. Mr. Amberg, you are not getting our attitude. Our attitude is not a critical attitude of that feature at the present time. Our attitude is investigating why we should go in from now on—from now on, not from now back.

Senator FERGUSON. In other words, how much money has been spent to date and what would it cost.

Mr. AMBERG. I will give you the exact expenditures in a moment.

Senator KILGORE. Are we going to dig ourselves in deeper, to say, in other words, are we going to take a risk.

(Off the record.)

Senator FERGUSON. And I should like to have the date that this emergency was passed.

Mr. AMBERG. What emergency has passed?

Senator FERGUSON. This so-called use of the North Pacific.

Mr. AMBERG. It hasn't passed yet.

Senator FERGUSON. The Army doesn't think it has passed?

Mr. AMBERG. It is not the same so far as concerns the loss of tankers.

Senator FERGUSON. Has it ever figured up the steel that has been used, that could have been used in tankers?

Mr. AMBERG. No, I haven't. I imagine a number of tankers could have been made with the same amount of steel.

Colonel WILD. I once had it proven to me that the amount of steel that is used in the pipe line was less than the steel that would be required for barrels to supply a similar quantity, 3,000 barrels of gasoline, to that air port and highway operation up there. I was just a little astonished, but it is mathematically correct.

Senator KILGORE. You mean if the barrels were taken up and thrown away?

Colonel WILD. No, I mean if you had to make the barrels and, of course, you are not carrying the pipe line away.

Mr. HALLEY. Leaving the pipe line alone, would you care to comment on what is involved in getting that refinery, oil-digging equipment, and so forth, up to that project?

Senator KILGORE. He has two more paragraphs. I want him to finish.

Mr. AMBERG. I should like to add something first, before I do that: The fact that this project ceased to be of emergent use, which Senator Ferguson implied in his question it would be, is one which the General Staff of the War Department has determined to the contrary as recently as July 26, as I pointed out here. To be sure, the great emergency which we faced in Alaska, when we did not control the Pacific, has passed. I don't suppose there is exact date for that. It has passed gradually over the months, and by the time that Attu had fallen and Kiska was about to fall, and the Navy had increased its strength, I suppose by spring, or certainly July of this year, that particular additional emergency had to a great degree passed, but the staff has determined, and I am not competent to pass behind their determination, that there is still, as I gave you earlier in my statement, the present military need for that oil supply in or to Alaska, other than that which can be brought from the United States.

Colonel FRIEDLICH. July 26.

Senator FERGUSON. One of the reasons why I asked the question, I understand the Under Secretary to say at an open hearing testimony that they were going to withdraw a great amount of troops from Alaska and the Aleutians.

Mr. AMBERG. Well, troops—I don't know about the hearing you mentioned, but I consulted with the Under Secretary as late as 3 o'clock, I guess it was, this afternoon, shortly before coming over here.

Senator FERGUSON. It was before that draft hearing at the Military Affairs Committee. I heard him personally.

Mr. AMBERG. And the troops have never been the primary method of either defending Alaska or basing offensive operations from Alaska. It has been primarily the air force, and as late as this afternoon the Under Secretary told me to tell you that the present military necessity of oil, petroleum products, developed, if possible, in that neighborhood, continued, and that with the decreasing reserves in the United States, the need of procuring petroleum products from other nations was becoming more marked and was more important today than it seemed in 1942, when this project was first started.

Mr. HALLEY. Can we take them up one at a time? First, with regard to the decreasing reserves in the United States, is it contemplated that

the trickle of oil which is being produced at Norman Wells and which will be refined at Whitehorse, at the very earliest some time next summer, is going to contribute materially to reducing the shortage of petroleum in the United States?

Mr. AMBERG. I think 3,000 barrels, while it is only a small part of the total production of the United States, is, nevertheless, a part, and located at a place which makes it therefore more valuable than if located elsewhere.

Mr. HALLEY. How many barrels would you say it is worth to our over-all production picture?

Mr. AMBERG. Three thousand barrels, making roughly, available 500 barrels of aviation gas where needed, and roughly about 1,000 barrels a day of other fuel.

Mr. HALLEY. How many experienced drilling crews and rigs are located in that area, engaged in drilling or wildcatting or exploration, do you know?

General WORSHAM. Two rigs for the Imperial Oil Co. and two for the Noble Drilling Co. They have two in operation now and will have two more very shortly.

Senator FERGUSON. They are not wildcatting down here at all, are they?

General WORSHAM. I should like to refer that to somebody in the Quartermaster's Office.

Senator FERGUSON. Could you say they would increase the wildcatting if they had a few cents more a barrel?

General COVELL. Yes, sir; they could.

Mr. AMBERG. That is a question for the Petroleum Administrator to answer as to the United States.

Senator KILGORE. Have you ever figured the difference between the royalties being paid on wells drilled on Crown lands in Canada and the royalties being paid to the farmer on a farm in the United States? You will find approximately 90 cents in favor of the Canadian Crown land.

Mr. AMBERG. I don't know about the Crown lands in general. I do know that here was a field developed by the enterprise of the Imperial Oil Co., the subsidiary of an American company, to a degree which led the Army to believe it could be developed further for a considerably larger supply. Fortunately, that expectation has proved to be correct.

Senator KILGORE. What is the price of Pennsylvania crude, two seventy-five?

Major HAKE. About that.

Senator KILGORE. The same oil in West Virginia you have in Norman Wells fields?

Major HAKE. Similar.

Senator KILGORE. The farmer gets one-eighth of the \$2.75 for the oil under his land that he bought and paid for, and we are paying the Crown a dollar and a quarter for it, or the Imperial Oil Co., for the oil under the ground in Canada, and we are raising the devil because this same farmer who has a farm down in West Virginia wants about 4 cents extra a barrel on his royalties.

Mr. AMBERG. Major Hake is the gentleman who just talked.

Senator KILGORE. I am not being mean but getting the ludicrous part of the situation. We are choking our own oil producers off, and expanding foreign oil production at present prices, and it seems to me

we are not being fair to American oil producers. That is the point I am making and, gentlemen, I am not an oil producer. I used to be but I quit a long time ago, when I went broke.

Colonel WILD. You are also using the other man's oil, too, which is damn good.

Mr. AMBERG. Major Hake is of the Fuels and Lubrication Division of the Quartermaster Corps, and a geologist and an oil expert.

Major HAKE. I don't know about the expert, sir. I have been at it for some years. I think the comparison is not quite right because the Canadian Government is in the position of the West Virginia farmer, and the Imperial Oil Co. is in the position of the proprietor of that oil who has reduced it to ownership and is free to sell it or not, as he chooses.

Senator FERGUSON. Isn't the farmer free?

Senator KILGORE. The farmer I am talking about is in the position of the Imperial Oil, and the State of West Virginia is putting taxes on the oil and collecting it back from him.

Major HAKE. The Imperial Oil Co. spent about a million and a quarter dollars up there finding that oil, and they expect to sell that oil through whatever market may arise for it, so that they are not in the position of the farmer. The Canadian Government is the royalty owner on there.

Senator FERGUSON. In other words, the Canadian Government is one of the United Nations and it holds the oil and it wants this large price for the oil, to fight the war.

Major HAKE. It has remitted the royalties for the duration of the war. It collects no royalties from the oil.

Senator KILGORE. Who gets the dollar and a quarter?

Major HAKE. The Imperial Oil Co., who made the discovery and were the owners of that oil field, and we approached them to buy that oil.

Senator FERGUSON. But here the West Virginia man wants a little increase in it and the Government won't allow him the increase.

Major HAKE. That is too bad. I wish the Government would allow him to have that increase.

Senator KILGORE. Suppose I had 50,000 acres of land in the United States with oil in it; do you suppose the United States Government would go in and drill wells on it and pay a dollar and a quarter for oil in the ground and do all the gambling and everything else on it?

General COVELL. Well, the gambling, Senator, has been done. What Major Hake is trying to state is that the Imperial Oil Co. is in the position of the independent wildcatter who has gone and discovered oil on your property and has developed it and then turns around and sells his rights, or the oil, to some big company.

Senator KILGORE. But the gambling still goes on. You try to punch a hole in the ground and find oil, and you are gambling you won't find it. The best geologist in the world can tell you that it is there but can't tell you when you drive a stake in you will hit oil. You may hit a fault.

General COVELL. If you get oil on one section, you can get \$5,000 bonus per acre, plus your royalty on the next one.

Senator FERGUSON. How much land does the Imperial Oil Co. have at Norman Wells?

General WORSHAM. I understand that the part that was on the west bank in the Norman Wells field, they had leased that from a third party—that was not Crown lands. How many acres that is, I can't tell you.

Senator FERGUSON. Isn't it true that the 21 wells that have been drilled have been drilled on the Imperial Oil Co.'s land, and that practically has taken all of their land, and their territory, so that the next wells you will drill and wildcat on will be the Crown's land? Isn't that true?

General WORSHAM. I don't know about the exact location and the number. It is true, as I understand it, that the Imperial Oil had leased the land over on the Norman Wells side, where most of the wells were drilled. What they do before they drill a well now, they get a permit from the Canadian Government.

Senator FERGUSON. Because it is Crown land.

General WORSHAM. Yes.

Senator FERGUSON. What does the Crown get out of it?

General WORSHAM. No royalty.

Mr. AMBERG. No royalty. Here is something I state with diffidence because I have not seen the agreement and I may be misinformed, and if anybody else here has seen it, has seen the agreement, I wish he would speak up. I believe the Canadian Government and the Imperial Oil have some arrangement that when the war is over, the field will be divided between the Canadian Government and the Imperial Oil, approximately half each. Now, I have never seen any such agreement.

Colonel WILD. I might go on. I will look at this.

Mr. AMBERG. That is not an agreement to which we would be a party.

Major Easterwood is of the Corps of Engineers, in that branch of the engineers which makes contact with the Northwest District or Division.

Major EASTERWOOD. Division in the contract section.

Isn't it a fact that Imperial is not connected with the pipe line? Their options do not run to the large pipe line. They are involved only in this little drilling area.

Senator KILGORE. May I ask a few questions?

Mr. AMBERG. Major Easterwood is the contracting officer who made the Imperial contract.

Senator KILGORE. I am asking a question that any of you can answer, I hope. What is the daily consumption of high octane gasoline between Edmonton and Tanana—daily consumption?

Senator FERGUSON. Hundred octane?

Senator KILGORE. I am talking about high-octane gases.

Senator FERGUSON. Do you include Edmonton?

Senator KILGORE. Edmonton and Tanana.

Senator FERGUSON. Both inclusive.

General WORSHAM. By military forces?

Mr. AMBERG. You have it for Watson Lake to Fairbanks. I don't know if you have it to Edmonton.

General COVELL. It is what would come from Whitehorse.

(Off the record.)

Major HAKE. Experience in all that north country shows that under as much as a foot of snow, the extremes of cold spells are never experienced; in other words, that the snow is such a perfect insulator that the very low temperatures which prevail during short periods in what

we call cold snaps, do not penetrate to the base of the snow cover, and that pipe line will be under snow cover throughout the winter because there is considerable snow everywhere that it goes so that it is expected that the snow will act as a very effective insulator in skimming off the extremes of the cold snaps.

Senator KILGORE. How about your high river crossings, where you go 150 feet in the air?

Major HAKE. They are extremely short distances on oil capacity like that and a change in temperature won't have much effect. Of course, each one has its effect.

Senator KILGORE. How many pumping stations do you have on the line?

Major HAKE. Ten.

Mr. AMBERG. I may say that General Covell, who has been the Chief of the Fuels and Lubrication Division of the Quartermaster Corps, is leaving for overseas and will not be in town after tonight. If you have any questions particularly for him, you think you might wish to ask him, I would appreciate your doing it tonight. He will be succeeded by General Peckham, who is here now.

Mr. HALLEY. It is impossible to tell what knowledge he would have that the others would not have.

PIPE-LINE CAPACITY

Senator KILGORE. I have three or four questions here that I want to get in right now.

We have at most there a capacity of, shall we say, a daily demand would be at most 4,400 barrels, wouldn't it? In other words, that would be the most of your daily demand on oil out of Norman Wells, it would be 4,400 barrels a day—the most your pipe line would accommodate?

General COVELL. Would it accommodate that much?

Mr. AMBERG. I don't think it would.

Major PYLE. My remembrance is that at daily temperatures of about 50 or 60, it is around 3,700 barrels a day.

Senator KILGORE. Why are we developing 20,000 barrels daily production with a 3,700-barrel pipe line?

Mr. AMBERG. I think that question has bothered me somewhat in reviewing these papers. I haven't the slightest embarrassment in saying that. I think if this project is subject to criticism in one particular, that criticism may be that it was not made a large enough project. While we were at it, there should probably have been a larger pipe line; in other words, the War Department would have been out on a limb much farther if they had not been able to develop the 3,000. By hindsight it looks as though a larger pipe line and refinery should have been established.

Now, of course, we have certain geologists' reports, but those, as the chairman has pointed out, don't necessarily mean oil, but if we can develop a materially larger field there, I think that it is a matter which may well lead us to reach a conclusion for the expansion of the present project. The cost has not been determined, but that is one of the things we want to know our facts on first.

Senator FERGUSON. What is the capacity of the refinery, 3,000?

Mr. AMBERG. The same; 3,000.

Senator FERGUSON. So you would have to build a new refinery as well as new pipe line.

Mr. AMBERG. Or with additions, or send the oil down through Skagway.

Mr. HALLEY. Would you say the fact to which you refer was the reason why some 6-inch line was installed at the western end of the pipe line?

Mr. AMBERG. I don't know anything about that. Do you, General Worsham?

General WORSHAM. The 6-inch pipe line was available and it reduced one pumping station, and we wanted to get it across the muskeg before break-up occurred.

Mr. HALLEY. What do you mean by "available"? How did it happen to be there?

General WORSHAM. I don't know what it was ordered for, but it was up there when I got there. I guess it was for Skagway.

Colonel WILD. Six inch pipe was ordered originally for the Skagway line.

Mr. HALLEY. And was just put in for the last 100 miles of Norman Wells?

Colonel WILD. Let me give you the rest of the reason. It was one of those logical answers. You have three or four problems. You have something at the moment. You find the 6-inch pipe you have will help and reduce the number and amount of pumping equipment, so you decide you would be better off to use it on the Whitehorse-Norman Wells line than on the Whitehorse-Skagway.

Mr. HALLEY. Isn't it a fact that you were advised after all the 4-inch pipe had been ordered that by using 6-inch pipe lines you could materially reduce the number of pumping stations—in fact, reduce them from 10 to 2?

Colonel WILD. I don't know that it is. I certainly should think, however, that whoever would make that statement would make it before the people who could contradict him if he were not making a statement of fact.

Mr. HALLEY. Does anybody in the room know whether or not that was the reason for installing the 6-inch line that the War Department was advised by the technical consultants that 6-inch line would be much more economical than the 4-inch in operation?

Mr. AMBERG. Is there anyone here who has an answer to that?

Major PYLE. I believe that was set forth in the Bureau of Budget report.

(The report referred to was marked "Exhibit No. 1091," and is on file with the committee.)

Mr. AMBERG. That is the so-called Curran report?

Major PYLE. Yes.

Mr. AMBERG. What is the opinion of the engineers or oil men here, or officers in that connection?

General WORSHAM. The 6-inch line would have reduced the number of pumping stations; no question about that.

General COVELL. And also the amount of steel.

General WORSHAM. It would also have increased our tonnage requirements.

Mr. HALLEY. Why was 6-inch used on the western end if it is not desirable?

General WORSHAM. The tonnage that came up for the east end came from Waterways to Norman Wells, about 1,200 miles, and that on the western end came up two ways, from Dawson Creek and up the highway, and some from Skagway and up over the railroad.

Mr. HALLEY. How long after this pipe line was designed was the technical advice of an outside consultant sought?

General WORSHAM. Well, we can look at the date of the Standard Oil contract, which is here.

Colonel WILD. Standard Oil of California was in the picture as consultant from the beginning.

Mr. HALLEY. When did they get their first consulting contract?

Major EASTERWOOD. That date is the 25th of May 1942.

Mr. AMBERG. Twenty-fifth of May 1942?

Colonel FRIEDLICH. Contract or letter contract?

Major EASTERWOOD. That is the formal contract.¹

Mr. HALLEY. Was that for the building of the pipe line?

Major EASTERWOOD. Consultant service.

Mr. HALLEY. In connection with the pipe line?

Mr. AMBERG. Pipe line and refinery. Am I right, Major? That is as I understood it from you.

Major EASTERWOOD. Yes.

General COVELL. Also we had the architects and engineers.

Mr. HALLEY. Were they consulted about the diameter of the pipe to be installed?

General WORSHAM. That I can't answer because when I came into the picture, on April 2, 1942, the 4-inch pipe was not only ordered but much of it had been delivered.

Mr. HALLEY. April 2, 1943?

General WORSHAM. Yes.

Senator FERGUSON. Who was there before you were in charge?

General WORSHAM. Colonel Wyman.

Mr. HALLEY. Before the consultant was hired, as of May 25, 1942, was it not determined by the directive that the project would be for 4-inch pipe line?

General WORSHAM. That is correct.

Mr. HALLEY. Was it not a matter of fact that the pipe was immediately ordered?

Mr. AMBERG. I believe so. You have a copy of it. What is the date of it?

Mr. HALLEY. April 30, 1942, and thereafter, on May 25 a consultant was employed.

Major PYLE. The Secretary of War wrote to the Standard Oil Co. on May 23. Letter of intent was on May 25, was it not?

(The letter referred to was marked "Exhibit No. 1092," and is included in the appendix on p. 9837.)

Major EASTERWOOD. All I have here is the contract. If there is a letter of intent, it doesn't seem to be here. Generally they date the contract back to the letter of intent so that the contract merges and supersedes the letter of intent.

General WORSHAM. That is right; same date.

Mr. HALLEY. Colonel Wild, you seem to have some ideas as to reasons why the 6-inch pipe is installed on the western end. Do you know

¹ See Exhibit No. 1085-A, appendix, p. 9744.

whether the 6-inch pipe was installed at the western end after information had been received from the technical consultants to the effect that the 6-inch pipe would be more economical in operation?

Colonel WILD. I don't know.

Mr. HALLEY. Do you know it is not the fact?

Colonel WILD. No, I do not know it is not the fact.

Mr. HALLEY. Do you know where the information came from to the effect that using 6-inch pipe would eliminate pumping stations?

General WORSHAM. That came from Standard Oil, as I recall it.

Mr. HALLEY. The technical consultant?

General WORSHAM. Yes.

Colonel WILD. To me personally it came from Colonel Wendell.

Senator KILGORE. Mr. Amberg, were you consulted with reference to the question Mr. Ickes raised in 1942, for permission to carry on exploration in Alaska also, with reference to development of Alaskan fields?

Mr. AMBERG. I was not consulted about anything Mr. Ickes proposed in 1942. I have been consulted somewhat more recently on somewhat more recent proposals of Mr. Ickes.

Senator KILGORE. When was that?

Mr. AMBERG. Oh, within the last month, and the Army right now is undertaking—

Senator KILGORE (interposing). These proposals were made before that. I see a representative of the Navy here. Proposals were made both to Army and to Navy, in either '42 or '41, for exploration at Point Barrow filed, and other places where fields with promising seepages were found—Wide Bay.

Mr. AMBERG. You asked a question of me? I am not familiar as to what happened in 1942.

Senator KILGORE. I am not sure of the date. I know it was longer than a month ago because I heard it some 2 months ago.

Colonel WILD. I can insert something on the Wide Bay.

Mr. AMBERG. I may say at the present time—and I will ask General Covell to correct me if I am not telling it accurately—the War Department is having conferences with Mr. Ickes' representatives, with a view to prospective development at Wide Bay, with War Department funds. That is on the Alaskan Peninsula, opposite Kodiak Island.

PROJECT COST DATA

Senator KILGORE. I have three or four questions.

How much tonnage of material, equipment, pipe, and supplies of all kinds for the pipe line and refinery were hauled in over the Skagway Railroad from Skagway, in the year 1942 and in the year 1943?

Mr. AMBERG. Over the railway? Can you answer that, approximately?

General WORSHAM. I can't break it down in that detail and I doubt if our figures would show it. We show the tonnage that we used on the construction and the tonnage that the service demanded of us for food, supplies for the troops, and clothing, and, as I recall it, the total tonnage for that Canol project was 200,000 tons. That was the tonnage. That included tonnage delivered at the following places: To Dawson Creek by rail, hauled over the highway, to Waterways by rail, taken down the Athabaska, the Slave, and the Mackenzie Rivers, to

Norman Wells and Camp Canol, and also that which was brought up from Valdez by road into the Fairbanks district, and also some tonnage that was hauled over the Alaska Railroad.

Senator KILGORE. That brought up from Valdez was partly portage and partly water?

General WORSHAM. No; it was brought up by water and then hauled over.

Senator KILGORE. And then up over a highway.

General WORSHAM. To the Alaska military highway.

Senator KILGORE. And that used in Norman Wells?

General WORSHAM. Was brought to Waterways and then across Great Slave Lake, and there was portage of 16 miles for every ton taken down.

Senator KILGORE. You don't know, then—there is no way of your telling—how much freight was hauled up the inland places?

General WORSHAM. For the Canol project; no, sir, I haven't the figures.

Senator KILGORE. All right.

Mr. AMBERG. Those figures are not, as I understand it, obtainable.

General WORSHAM. It would be a tremendous difficulty. You would have to go over every manifest and try to bring back and break it down as to whether it was used on Canol projects or highways.

Mr. HALLEY. Then, in computing the cost, you haven't been able to allocate it on the transportation?

General WORSHAM. We know 200,000 tons was hauled.

Mr. HALLEY. But you don't know which way it was hauled; therefore how can you break it up and allocate the costs according to the more or less expensive means of transportation?

Senator FERGUSON. Is this transportation charge in these figures we have received in Mr. Amberg's statement?

Mr. AMBERG. Is that included?

Senator FERGUSON. In the cost of the refinery, is the cost of transportation in that cost, or is that the installation of the refinery after it is delivered on the ground?

Colonel WILD. Transportation is in there.

Senator KILGORE. How about the pipe line. Does that include the building of the access road to lay the pipe?

General WORSHAM. Yes, sir.

Senator KILGORE. Have you completed that access road to lay the pipe?

General WORSHAM. No, sir; we have not.

Senator KILGORE. And does it also include the winter and summer route into Norman Wells?

General WORSHAM. That is in the sheet I gave Mr. Halley.

Senator KILGORE. The total cost?

General WORSHAM. Yes, sir.

Senator KILGORE. In the cost of that?

Mr. HALLEY. I don't see how it could be.

Senator KILGORE. I understand it cost \$26,000,000 to build the two routes and the Norman Wells estimate is what?

Mr. AMBERG. Give me the break-down of costs.

(Off the record discussion.)

(The cost data referred to were marked "Exhibit No. 1093," and are included in the appendix on p. 9840.)

Senator FERGUSON. In the figures Mr. Amberg gave, there was no transportation cost.

Colonel WILD. Not to the extent that he reported.

Mr. AMBERG. I gave you the particular costs on the particular things I covered. Now, I have here a sheet which I believe will give you the total costs, including transportation to the place where they are put in and including any roads that had been built in connection with this project.

Colonel WILD. Pardon me a minute. These people some way have gotten hold of the sheet which is incorrect. May I insert a copy of the sheet which is correct?

Mr. AMBERG. As revised.

Colonel WILD. You may keep both. There was an error made in the computed cost of Canal No. 5.

Mr. HALLEY. What is the error?

General WORSHAM. Transposition of figures.

Colonel WILD. This sheet here [indicating] is not entirely correct. This one is. This also includes some data not on this sheet.

Mr. HALLEY. I notice that the sheet we had originally, which I will mark "A," had an item, "Original estimated cost." Does that appear at all on the sheet you have given the committee, which I will mark "B"?

Colonel WILD. No, sir. The reason I give you this is so you may keep up with Mr. Amberg.

Mr. HALLEY. Would you indicate by making checks on sheet A, which are the incorrect figures, and I think Mr. Amberg might continue while you are doing that.

Mr. AMBERG. This sheet, a copy of which will be delivered to you as part of your record, divides the matters up in columns—"Material cost," shipping cost, labor costs, and U. S. E. D.—that is the engineers' cost, as I understand it—and the total, therefore, of those columns carried forward, is the revised estimate as of November 1, and out of that, the cost of the project as estimated up to November 1, and the remaining costs to be incurred.

The first item on here is the pipe line and storage facilities, Watson Lake through Whitehorse to north of Fairbanks, and south to Skagway—that might be called the distribution lines, and it is divided up separately on Skagway to Whitehorse, Whitehorse to Watson Lake, Whitehorse to Fairbanks, and Fairbanks to Tanana. That last is, however, now being discontinued, and the total revised estimate as of November 1, 1943, for those projects, is \$34,806,509, of which \$25,939,283 will have been spent by November 1, leaving \$8,867,226 still to be spent.

In addition to that, there is the waterway project, so-called, which I believe includes transportation at the east end. May I ask, am I right?

General WORSHAM. Yes; and construction of boats and barges.

Mr. AMBERG. And the construction of boats and barges, and marine operation. Does it also include the winter roads?

General WORSHAM. Yes, sir.

Mr. AMBERG. Both or one?

General WORSHAM. Grimshaw Road only; the road from Fort Nelson to Fort Simpson is not included.

Mr. AMBERG. That is not in here, or is that the U. S. E. D., General Worsham?

General WORSHAM. No; it is not.

Colonel WILD. The road from Fort Simpson to Fort Nelson was built by troops and does not appear.

Mr. AMBERG. This includes all the transportation items on the waterway project, which would be from the railheads in Canada to Norman Wells.

Senator KILGORE. How many miles of that road are there?

General WORSHAM. About a thousand miles of roads from Peace River to Norman Wells.

Senator KILGORE. How much of that built by engineers?

General WORSHAM. That was entirely built by contractors.

Senator KILGORE. You said one stretch, from Fort Simpson to Fort Nelson—

Mr. AMBERG (interposing). That is another road, from Fort Nelson to Fort Simpson.

Senator FERGUSON. What was that road built for?

General WORSHAM. The purpose was to haul freight from Fort Nelson to Fort Simpson.

Senator KILGORE. How long is that?

General PECKHAM. The scale of this map is 1 inch, 200 miles.

Senator KILGORE. I was trying to get the percentage of road.

Mr. AMBERG. It is a different road, Senator, not the same road.

Senator KILGORE. What was the purpose of building that road?

General WORSHAM. We could use the Alaska Highway to come up there to Fort Nelson, and thus shorten our winter operations.

General PECKHAM. That looks like about 230 miles, roughly.

Senator KILGORE. All right.

Mr. AMBERG. This waterway project—

Mr. HALLEY (interposing). Before you get to the waterway project, on the first project, pipe line and storage facilities, I don't understand how you can ascertain shipping cost Skagway to Whitehorse without being able to advise the committee how many tons were shipped.

General WORSHAM. I just don't have the tonnage figures here.

Mr. HALLEY. Are they available?

General WORSHAM. I think we can get them.

Senator KILGORE. I should like to have the tonnage shipped up the inland passage to Skagway or Valdez for the Canol project.

General WORSHAM. I think we can get that for you.

Mr. AMBERG. Now, if I may proceed with the waterway project, which is the second main heading on this statement, we have—the statement we have given you—the estimated cost revised as of November 1, 1943, \$26,463,070, of which \$23,915,885 will have been spent by November 1, leaving \$2,547,185 estimated additional expense.¹

Now, for prospecting at Norman Wells—that is the Imperial Oil contract, the Noble Drilling Co.—additional contract on wildcatting, and certain work done by Bechtel-Price-Callahan, the total estimate revised as of November 1, is \$17,224,860, of which \$7,177,100 will have been spent, as we now compute it, by November 1. The remaining \$10,047,760 is the balance of the estimate, except as we may curtail some of the exploration work.

¹ See Exhibit No. 1093, appendix, p. 9840.

Now, the pipe line itself, the main petroleum pipe line, as distinguished from the distribution lines, plus the cost of the refinery, together come to a present estimate as of November 1 of \$55,446,749, of which \$41,061,955, it is estimated, will have been spent by November 1, leaving \$14,384,794 still to be spent.

Now, for the totals here, total estimated cost revised as of November 1, of the entire Canol projects, amounts to \$123,941,188, of which \$98,094,223, it is estimated, will have been spent by November 1, and the balance, or \$35,846,965, to complete the project.

This is broken down in various ways on the chart. There is a different break-down here than I gave you in my prepared statement which did not include the waterway project.

Senator KILGORE. Now, that other question: Was anybody in there at the outset of this thing that made a survey, anybody here before all this work started, and the contracts were let?

Mr. AMBERG. I don't think so and I doubt that any complete survey was made.

Senator KILGORE. How many drilling equipments did Imperial Oil Co. have at Norman Wells, how many sets?

General WORSHAM. How many? Finally got four up there, but some of those were purchased by this—by this project.

Senator KILGORE. How many did the United States Government purchase and ship in? Could that be ascertained?

General WORSHAM. It can be.

Senator KILGORE. And what, if any, drilling equipment and type and kind.

General WORSHAM. They had one old drill.

Senator KILGORE. Star drilling machine?

General WORSHAM. One old rig.

Senator KILGORE. Or Parkersburg rig and reel?

General WORSHAM. It was the one that drilled Discovery No. 1, first wild drill.

Senator FERGUSON. Did they buy these drills here in the States?

General WORSHAM. Yes; through the Chief Engineers.

Senator KILGORE. This new outfit has shipped two and have priorities for two more?

General WORSHAM. Those are rotary drills.

Senator KILGORE. And those are being purchased by the Government and furnished to them?

General WORSHAM. That is right.

Senator KILGORE. What is the contract price on drilling those wells up there, cost plus what?

General WORSHAM. Cost plus a fixed fee.

Senator KILGORE. What is that estimated on?

General WORSHAM. We will give you that, on estimated cost of drilling 200 wells.

Mr. AMBERG. There is no fee except a nominal one to Imperial Oil.

Senator FERGUSON. Noble Co. has 200 wells to drill?

Senator KILGORE. It has?

General WORSHAM. That is right.

Major PYLE. One hundred.

General WORSHAM. Let's get the contract.¹ We will get it out of

¹ See Exhibit No. 1088, appendix, p. 9808.

the contract—number of wells, you want? The directive said to drill 200 wells. This was to drill 100, Noble drill.

Senator FERGUSON. And what is the estimated cost to drill, per well, 100? What are they drawing their fixed fee on, and what is it?

Mr. AMBERG. On the sheets I have given you, the total estimated—

General WORSHAM (interposing). The fixed fee was \$290,000, and estimated construction cost, exclusive of that fixed fee, was \$5,800,000.

Senator FERGUSON. In other words, on \$5,800,000, they are getting a fixed fee of \$290,000?

General WORSHAM. That is correct.

Senator FERGUSON. Now, how is the cost actually running compared to the estimated cost?

Mr. AMBERG. Well, the present—

General WORSHAM (interposing). Noble Drilling hasn't drilled enough wells to really get a fair idea of the average cost.

Senator FERGUSON. How much a well are they getting on a percentage?

General WORSHAM. We reimburse them for all the costs and this estimated cost is simply for the purpose of estimating the fee.

Senator FERGUSON. Suppose they drill 50 wells?

Mr. AMBERG. Suppose they shut them down?

General WORSHAM. We then reduce the fee.

Senator FERGUSON. How is it reduced and how payable? Suppose they put in \$5,000,000 and drill 40 wells on a cost-plus basis, how much fee would they get?

General WORSHAM. They would get the whole fee.

Mr. AMBERG. If they drill 40 wells instead of a hundred; I don't believe that is correct.

Major EASTERWOOD. This is just a standard CPFF contract. They get that proportion of the fee that that percentage bears to the cost.

General WORSHAM. Cost is not the controlling feature.

Senator FERGUSON. Have you any idea how they are running now on actual cost, according to estimate?

Major EASTERWOOD. No, sir; I don't.

Senator FERGUSON. I take a hypothetical case. Suppose they take the \$5,800,000 to drill 40 wells; what would be the fee?

Major EASTERWOOD. You take the 40 as compared with the total number they are required to drill, which is a hundred, and the base of that percentage—you take the same percentage of the whole fee.

Senator FERGUSON. The \$290,000 is a certain percentage of \$5,800,000?

General PECKHAM. Five percent.

Mr. AMBERG. Of the estimated cost, not the actual cost.

Senator FERGUSON. I understand that, but suppose the actual cost is \$5,800,000, and they drill 40 wells?

Major EASTERWOOD. They would get forty one-hundreds of it.

Senator FERGUSON. Show me the provision of the contract that says that.

Mr. AMBERG. If they do not achieve all the work done, they do not receive a fee on what the actual cost up to that point was but on the part of the work which has been done.

Major EASTERWOOD. May I read the termination provision? ¹

The Government may terminate this contract at any time by notice in writing from the contracting officer to the contractor. Such termination shall be effective in the manner and upon the date specified in said notice, and shall be without prejudice to any claims—

and so forth.

I will skip part of this here.

Upon termination (a), the Government shall assume and become liable for all obligations, commitments, and claims; (b) the Government shall reimburse the contractor for all expenditures made in accordance with article II; (c) the Government shall reimburse for such further expenditures after date to protect Government property, etc.; (d) the Government shall pay the contractor any unpaid balance of rental; (e) if the contract is terminated for the convenience of the Government, the contractor will be paid that proportion of the prescribed fee which the work actually completed bears to the entire work of the contract.

Senator FERGUSON. Not at the convenience of the Government—the contractor has gone ahead already and spent all the money on 40 wells.

Mr. AMBERG. And we terminate it for the convenience of the Government.

Major EASTERWOOD. And he only gets that. We look at the piece of work completed and take the percentage of that to total work, and whatever that percentage comes out, we apply against the two ninety thousand fee; in other words, if he has done half of the work, regardless of his cost, he would get one-half of two ninety.

General WORSHAM. That is what it cost the Government, because the items are reimbursable.

Major EASTERWOOD. He gets his cost. I thought we were talking about the fee.

Senator KILGORE. He gets \$2,900 fixed fee per well under that contract.

Major EASTERWOOD. No, sir; he gets his fee on percentage of work that has been done.

Mr. AMBERG. Let's let Major Hake take the floor a minute.

Senator KILGORE. You say he gets \$290,000 for drilling 100 wells. To get it down to brass tacks, that amounts in round numbers to \$2,900 per well, as a fixed fee. Now, what service does he render for that fixed fee, and what does he supply?

Major EASTERWOOD. As I say, it is a common fixed-fee contract that pays him for his supervisory services, plus—

Senator KILGORE (interposing). His tool pusher that he has up there.

Major EASTERWOOD. As you know, we never pay corporate officers or partners of the firm, or interest on borrowed money.

Senator FERGUSON. Are you sure you never pay officers?

Mr. AMBERG. As such.

Major EASTERWOOD. I am talking about the standard type of fixed-fee contract.

Senator KILGORE. Well, now, he has no capital invested there, because you furnish the equipment to place it in there for him.

Major EASTERWOOD. I think he is obligated to assemble. He might purchase, and then we would reimburse him. He has capital invested for a period of time.

¹ See Exhibit No. 1087, appendix, p. 9790 at pp. 9802-9803.

Senator KILGORE. All oil-well supplies are payable in 90 days.

(Off the record.)

Senator KILGORE. He furnishes an organization to get a crew in there. He assembles the equipment, and for that he receives this fixed fee?

Major EASTERWOOD. Correct, sir.

Senator KILGORE. And you can stop him after he has drilled 10 wells, or 20 wells, or 30 wells, and you pay him 10, or 20, or 30 percent of the total fee?

Major EASTERWOOD. Plus all the reimbursements; in other words, whatever he has spent out would ordinarily be reimbursible under the contract. We pay it.

Senator KILGORE. You pay it anyway.

Major EASTERWOOD. In any event.

Senator KILGORE. He pays his men off, and you reimburse him.

Major EASTERWOOD. I would say this is not different from any canonment type of contracts you gentlemen have examined, and it is the typical fixed-fee type of contract, only this happened to be for well drilling, while the others are for constructing buildings.

Senator FERGUSON. How many wells has Noble drilled to date?

General WORSHAM. One well.

Senator FERGUSON. Was it dry?

General WORSHAM. Yes.

Senator FERGUSON. That was dry. Do you know the cost of that well to the Government to date—not his fee, but the cost?

General WORSHAM. I haven't it here, but I think we can get it.

Senator KILGORE. Can you give us the footage cost on the wells both of Imperial and Noble, exclusive of transportation of equipment into Norman Wells?¹

General WORSHAM. Actual field cost?

Senator KILGORE. Field cost of drilling the wells, wages, steel, fuel, cordage, and everything else, and the number of feet drilled, so you can reduce it to a cost per foot.

Senator FERGUSON. How many wells have been drilled?

General WORSHAM. There have been 33.

Senator FERGUSON. Originally there were seven wells—four producing and three dry.

General WORSHAM. Yes, sir.

Senator FERGUSON. The 33 are in excess of the 7?

General WORSHAM. No; includes the seven.

Senator FERGUSON. Twenty-six wells; is that right? Twenty-six wells have been drilled?

General WORSHAM. Yes.

Senator FERGUSON. One by Noble and twenty-five by Imperial; is that correct?

General WORSHAM. That is correct.

Senator FERGUSON. How many of the 26 have been dry?

General WORSHAM. I think we have that data right here.

Major PYLE. Just a moment. I think just three, sir.

Senator FERGUSON. Three out of 26?

General WORSHAM. No; I think it is more than that.

Mr. HALLEY. There were two dry ones before that.

¹ Data subsequently supplied and included in appendix on p. 9912.

Major PYLE. Three that the Imperial drilled before that.

Senator KILGORE. Six dry holes, and three have been drilled at Government expense, and three by Imperial.

Senator FERGUSON. Is that correct?

General WORSHAM. Did you count those three untested ones down there? You don't know whether they are dry or not.

Major PYLE. That is right.

Mr. AMBERG. Mr. Chairman, in my original statement certain costs were given, and I just want to make it clear that they did not include the items I covered in my later statement, \$26,463,070, estimated cost of the waterway project, so-called, which I have since given. I didn't mention waterway project one way or the other. I think you should have it and it is included in the total of \$133,941,000 of the present estimated cost.

Mr. HALLEY. When you give that as the present estimated cost, do you know whether that includes the cost of materials which the United States agreed to furnish the prospecting company for the development of the Norman oil field and for prospecting in other fields?

Mr. AMBERG. Yes.

Colonel WILD. You refer to the sheet I gave you, and you find that cost is broken down, the material cost, shipping costs, labor costs, U. S. E. D. costs.¹

Mr. HALLEY. I understand the materials to be furnished as such, not materials for which we are to reimburse the company, which comes to \$3,000,000 on the \$6,000,000 to be supplied for the two drilling companies.

Colonel WILD. If you look at those, one item is three million six, and the other is three million five. It is better than six million.

Mr. HALLEY. That also includes materials which they are purchasing and we are reimbursing.

Colonel WILD. Imperial's cost means anything they buy and anything they buy which we have to pay for.

Mr. HALLEY. This cost includes everything?

Colonel WILD. Couldn't get a complete cost of the project without it; that is correct.

Mr. HALLEY. In working out the entire cost of the project, it should be pointed out, should it not, Mr. Amberg, that revised cost does not include the cost of the following parts of the project which originally were estimated: First, the pipe line from Fairbanks to Tanana—that is \$8,000,000.

Mr. AMBERG. Except that part which had already been expended before its further development was abandoned, some \$759,773.

Mr. HALLEY. So \$7,200,000 is stricken off the total cost as originally estimated; is that right?

Mr. AMBERG. I think so; right; but there have been other things added since the original estimate.

Mr. HALLEY. I am trying to get a comparison of the final cost—of the original cost. Then you get the winter road—10 percent of that was discontinued—amounting to some \$650,000.

Colonel WILD. The winter road, which appears on the sheet that you have in front of you on your left, is known as Canol 6 winter and

¹ See Exhibit No. 1093, appendix, p. 9840.

Grimshaw Road. That was essentially complete at the time when we were told to cancel it out, so there has been some reduction in the estimated cost.

Mr. HALLEY. That is 10 percent?

Colonel WILD. Approximately that.

Mr. HALLEY. Then the Houdry process—the Houdry project—is eliminated?

General COVELL. Yes; except the design.

Mr. HALLEY. And how much was saved of the final cost by eliminating the Houdry process?

Colonel WILD. Two million five hundred thousand. I am beginning to talk in elemental figures. The refinery cost, as given on exhibit B that you have in front of you, includes two million five hundred thousand for the refinery, which represents costs already undertaken by the Government, and costs in connection with the completion of plans and specifications for the Houdry process.

Mr. HALLEY. How much of the two million would be the plant?

Colonel WILD. Two million five hundred thousand.

Mr. HALLEY. Two million five hundred thousand. The total cost of the Houdry, if it were installed, would be \$6,000,000?

Colonel WILD. If we had to install the Houdry, it would add another two million five hundred thousand to the estimate you have in front of you, which would be about \$6,000,000.

Mr. HALLEY. So there would be another \$5,000,000 of cost in the final estimated cost if these projects were completed?

Colonel WILD. Two million five hundred thousand.

Mr. HALLEY. I am talking about the Houdry process and winter road and Tanana.

Colonel WILD. If we added Tanana, it would be up much more than that.

Mr. HALLEY. Eleven million—is that right? What was the original estimated cost?

Mr. AMBERG. You mean of the project as it now stands?

Mr. HALLEY. No, no; of the project originally.

Mr. AMBERG. That didn't include some of the distribution lines which were added later.

Mr. HALLEY. I mean including all lines.

General COVELL. The sum total of all original estimates?

Mr. HALLEY. That is right.

General COVELL. Including these items which have since been eliminated?

Mr. HALLEY. That is right.

Colonel WILD. One hundred thirty-one million, some-odd-thousand dollars.

Mr. HALLEY. \$131,120,768. Is that right?

Colonel WILD. I am sure of one hundred and thirty-one million. I am not sure of the thousands and hundreds. That is how it appears.

Mr. HALLEY. That is on the sheets you supplied us, A and B.¹ Are they accurate, Colonel?

Mr. AMBERG. He has already told you.

Colonel WILD. That is all right, but it does not include certain things here.

¹ See Exhibit No. 1093, appendix, p. 9840.

Mr. HALLEY. A is correct insofar as it goes. Is that right? It simply does not contain certain columns which appear in B. Now, if the figure I have given for the total original estimated cost is the figure which appears on A and B, you would say it is correct?

General WORSHAM. I should like to modify that. The \$131,000,000 cost which you estimated there did not include the extension of the project over a longer period of time, and this one, made as of November 1, 1943, does.

Colonel WILD. The one hundred thirty-one million did include all portions of the project.

General WORSHAM. That was the estimate at the time made.

Mr. AMBERG. Each part of the project as originally estimated.

Mr. HALLEY. Your present estimate on A and B is \$133,141,188, but to get a comparable figure you would have to add the eleven-million-odd dollars which we have just agreed would represent the cost of the projects which have been now cut off.

Mr. AMBERG. As I understand it, in other words, the present estimate for the work now being done is higher than the previous estimate, original estimate.

Mr. HALLEY. And on a comparable basis it would be higher by about \$14,000,000. Would that be right?

General COVELL. According to your figures—it is new to me, but your mathematics are correct.

Mr. HALLEY. Thank you.

Mr. AMBERG. About 10 percent higher.

Mr. HALLEY. One thing is still troubling me on this cost question and that is a letter which the Under Secretary of War addressed to Director of the Budget on July 27, 1943, and that letter has been transmitted to the committee. That letter states:¹

Cost is now \$88,000,000, and if suspended, the present loss will be \$50,000,000, with recoverable materials of \$420,000, and the further cost of demobilizing of \$6,454,000, leaving the alternative of two choices: First, sacrifice \$50,000,000 with no tangible results; or spend \$38,000,000 to complete the project.

I should like to know if anyone present had anything to do with the drafting of that letter, or can explain how the letter comes to mention a total figure of \$88,000,000.

General COVELL. I can answer that. The \$88,000,000 is the project including the production of Norman Wells, the crude-oil pipe line, and the refinery, because the matter of the distribution line was not brought into question. This letter is referring to the part which was questioned.

Mr. HALLEY. Did this letter include the so-called waterway project in the \$88,000,000?

General COVELL. It did, eighty-eight and thirty-one, which is one hundred and nineteen. I don't think it included the marine operation. There was \$88,000,000 for that, \$31,000,000 for the distribution line, making a total of approximately \$119,000,000. I do not know whether that is comparable to our present \$134,000,000.

Mr. HALLEY. It is \$144,000,000.

General COVELL. Present estimated cost—that \$88,000,000 does not include the Houdry process.

¹ Subsequently entered in record as Exhibit No. 1125, see *infra*, p. 9865.

Mr. HALLEY. Does it include the waterways project?

Colonel WILD. All of it except the \$5,760,000 shown as marine operators.

Mr. HALLEY. It includes that. Does it include the prospect end?

Colonel WILD. Yes, sir.

Mr. HALLEY. And the Whitehorse refinery and pipe line?

Colonel WILD. Yes, sir.

Mr. AMBERG. It is the part, roughly speaking, exclusive of the distribution lines which the Bureau of the Budget, as I understand it, in no way questions.

Mr. HALLEY. How deep is the oil?

General WORSHAM. Twenty-three hundred to twenty-four hundred feet.

Senator FERGUSON. Do I understand that these 26 wells produce 20,000 barrels a day?

General WORSHAM. No, sir; you do not.

Senator FERGUSON. How much will they produce?

(Off the record.)

General WORSHAM. Thirty-three wells are drilled in the Norman Wells field; that is correct. We are drilling during the 1943 season three wildcat wells. They may be an extension of the Norman Wells field.

(Off the record.)

Senator KILGORE. Major Hake, did you make a study of the history of production of the Norman Field wells up there?

Major HAKE. No; I never studied them.

Senator KILGORE. Did you? Is there anybody here who has?

Mr. AMBERG. Major Pyle is of the general field office of the fields and wells division.

Senator KILGORE. What has the production dropped?

Major PYLE. There has been no production drop inasmuch as the only production taken from the field to date has been the relatively small amount which has been refined locally and used locally.

Senator KILGORE. Are they flowing wells or pumping wells?

Major PYLE. Flowing wells.

Colonel WILD. And they are capped?

General COVELL. Yes; they are capped.

Major PYLE. Except for the small amount of production, which has not been enough to display any decline characteristics—

Senator KILGORE (interposing). Of course, you know you will get a production drop as soon as you drill in.

Major PYLE. Naturally. As soon as you start producing, if it is a rate that is greater than the replenishing peak of an Edgewater encroachment, that would be the case.

General COVELL. Your question could not be answered, Senator, until they put the pipe line and storage in and took them into consideration and actually produce the wells over a period of time.

Senator KILGORE. I know that, but I thought possibly the wells they have been operating up there would give you some idea of production rate, because of decreased production, because sand formation has a great bearing on your decreased production, and usually in the same fields you can pretty well estimate your production decrease.

Major PYLE. This is limestone, sir.

General WORSHAM. It is not sand.

Senator KILGORE. Your drop will be slow, then. It will not be as much as porous sand. All right.

How many wells are you authorized to drill, and how many are you going to drill? You have drilled 26 now.

General WORSHAM. We are going to drill in accordance with the directive until we have discovered a field capable of producing 20,000 barrels a day. That is my directive.

Mr. AMBERG. The present directive, unless changed.

Senator FERGUSON. Until the production will produce 20,000 barrels a day?

General WORSHAM. The discovery of a pool capable of producing 20,000 barrels a day.

Senator KILGORE. Estimated production.

Mr. AMBERG. As I understand it, in the wildcatting they wouldn't have to put down wells which actually flow at 20,000 barrels a day, if they have done enough drilling to achieve that directive.

Senator FERGUSON. Have you done that?

General WORSHAM. No, sir.

Senator FERGUSON. What is your estimated field now?

Mr. AMBERG. Just a moment—that is a matter which the Office of the Chief of Staff has particularly asked us not to give. It is a matter of military secrecy, the size of the field and what has been proved to date, and I forgot to mention that earlier. That is one of the subjects which they think of great importance, that it be not stated in any way at this time except to say that we are developing a field toward a target of 20,000 barrels, and have every reason to believe from reports we have, insofar as geologists' reports are good, that we have encountered a good reservoir, far in excess of the 3,000 barrels, that is, considerably in excess of the 3,000 barrels.

Senator FERGUSON. Does your contract provide you can use up to 20,000 barrels?

Mr. AMBERG. We can use any amount we want during the war.

General WORSHAM. No limitation on it by Imperial Oil.

Senator KILGORE. What is the exemption in Canada from income tax for prospecting and exploration and such purposes, for oil?

Mr. AMBERG. Does anyone here know that?

Major HAKE. Anything that the company and Government choose to make it, by order in council. That is a perfectly flexible thing. The Cabinet can get together and make any deal they choose with a private individual about such matters.

Mr. AMBERG. Major Hake, did you have something more to add?

Senator KILGORE. I want to ask one more question. I want to know what Bechtel-Price-Callahan's office building in Edmonton—whether it was charged and what it was charged to and what it cost.

Mr. AMBERG. Was it charged to anything?

General WORSHAM. To the Canol project.

Senator FERGUSON. That is the Redwood Building. You know what we are talking about.

General WORSHAM. I can't give you the exact cost on that.

Senator FERGUSON. Can you—

Senator KILGORE (interposing). Can you get it for us?

General WORSHAM. Yes.

Senator KILGORE. And also how much of a lease is on the land and in whose name the land stands, and who owns the land—I mean who owns the building.

Senator FERGUSON. And what the conditions are as at the end of the war, whether the building goes with the land.

Mr. AMBERG. We will get the transcript and at that time will forward to you, General Worsham, any questions you have said you would answer.

(The data were subsequently received, marked "Exhibit No. 1094," and are included in the appendix on p. 9842.)

Senator KILGORE. Is there anything else tonight?

Mr. HALLEY. One more thing.

Mr. AMBERG. I think Major Hake had something about the fee matter.

PLANNING THE PROJECT

Mr. HALLEY. I had one other question, Mr. Amberg. Could you state on the record exactly who was responsible for the original determination to enter into this project which resulted in the directive of April 30, and who was consulted?

Colonel FRIEDLICH. 1942?

Mr. HALLEY. 1942.

Mr. AMBERG. General Somervell made the determination as a result of a recommendation made to him by, I believe, Dean Graham, who is dean of the engineering department of the University of Kentucky, and who for several years has been serving in the War Department as a consultant either to General Somervell or later the Under Secretary in connection with engineering developments.

Mr. HALLEY. How do you spell his name?

Mr. AMBERG. Graham? G-r-a-h-a-m. He was a colonel in the last war, engaged in engineering and transportation work in France, I believe.

Mr. HALLEY. Did he make any written report or recommendations?

Mr. AMBERG. I believe he did, and we have it here.

Mr. HALLEY. May the committee have a copy of that?

Mr. AMBERG. Yes.

Mr. HALLEY. Were any other persons or organizations consulted to advise on this, prior to April 30, 1942?

Mr. AMBERG. The matter has been considered on and off as early as February 1941, but it was not determined to do it until approximately the date of the formal directive—a few days before that date.

Mr. HALLEY. Can you state who was consulted? Was the then Coordinator of Petroleum for War consulted?

Mr. AMBERG. So far as I know, he was not. Here is the memorandum. We will furnish you a copy. I will read it to you. It is a memorandum of April 29, 1942, addressed to Commanding General, Service of Supply—who was General Somervell; subject, extension for fuel supply, Air Corps, in Canada and Alaska; and it is signed by the

initials J. H. G., which are the initials of J. H. Graham; and it makes the recommendation in some detail and states:

As a result of a conference this forenoon in the office of General Carter, General Streett, General Pyron—

who is here today—

Mr. Ray W. Smith, of the Board of Economic Warfare, and Mr. O. C. Wheeler, and Mr. F. B. Bimel, of the Standard Oil Co. of New Jersey, concerning the possible extension of a crude-oil production and oil-refining operation now owned and operated by the company at Norman, on the Mackenzie River, west of the Great Bear Lake, Northwestern Territory, Canada, I recommend that the Chief, Engineers, United States Army, be authorized as follows—

and shall I read just what the recommendation is?

Mr. HALLEY. Why not put the memorandum in the record?

Mr. AMBERG. It is approved and signed Somervell, April 29, 1942, but I didn't want you to understand that this just came instantly. There had been consideration of this field and its possibilities back at least till February 1941.

(The memorandum referred to was marked "Exhibit No. 1095," and is included in the appendix on p. 9842.)

Mr. HALLEY. In the conference referred to in that memorandum were the minutes reduced to writing?

Mr. AMBERG. Are there any?

General PYRON. None that I know of.

Mr. HALLEY. Is there any memorandum from the experts who were consulted prior to the issuance of this directive?

(The directive referred to was marked "Exhibit No. 1096," and is included in the appendix on p. 9843.)

Mr. AMBERG. Anything on that?

Mr. HALLEY. Any studies, recommendations, anything at all in writing from experts, outside agencies, or other people at all, concerning this?

General PYRON. No memorandums that I know of. I personally have known of the project up there, as an oil man; have known of it since it was discovered, and before this committee we had the statements of these geologists, engineers of the Imperial Oil Co., who showed us geological maps and gave records of production.

Senator KILGORE. Imperial Oil Co., in other words, brought this to our attention?

Mr. AMBERG. Brought it to our attention? Not from the Imperial Oil Co.

Senator KILGORE. Who did bring it?

Mr. AMBERG. I haven't gone back into what may have happened in earlier years, but the first one I know of is in February 1941, before we were at war, by Stefansson, the explorer. I may say he favored either at that time or a later time an Alaskan highway, over a route farther to the east, which later became known as the D route, which would have run up to Norman Wells and then across to Fairbanks, and also at some later stage he recommended that the refinery be at Fairbanks instead of at Whitehorse, but the use of Norman Wells in connection with Alaskan Highway and the fueling of airplanes to and in Alaska, I believe was first called to the attention of the War Department by Mr. Stefansson in 1941, unless it had been called to our attention at some earlier date that I have not found.

Mr. HALLEY. In the 14 months between February 1941 and April 30, 1942, were no surveys or studies of the engineering problems involved made at all?

Colonel WILD. May I make a statement there?

Mr. AMBERG. Yes, Colonel Wild.

General PYRON. So far as I am able to find from the report at the time Mr. Stefansson brought his suggestions in, the matter under discussion was more on the highway.

Senator KILGORE. Norman Wells was a sales talk to get the highway up there?

General PYRON. That apparently is the answer. Going back to what little additional information I have concerning the conference that you have a record of in front of you, Dean Graham's recollection is that at the time that the Norman Wells decision was made or just prior to that time that the decision was made, the War Department was faced with the problem of providing gasoline for what we call the Alaskan wing, varied ships for lend-lease purposes up through that country, and for tactical purposes, too—they were confronted with the problem of finding oil, preferably, if possible, somewhere up there near where they were going to operate, and this Mr. Smith, if that is his name, who is mentioned as from the Board of Economic Warfare—

Mr. HALLEY (interposing). Is Mr. Smith an oil man or an engineer?

General PYRON. I haven't the slightest idea, but, at any rate, he mentioned to the committee who were considering the problem, and brought back to their attention, the matter of the actual producing presence of oil at Norman Wells, and I think that an inquiry went to Imperial Oil Co. at that time.

Mr. HALLEY. You mean all this happened on April 29?

General PYRON. No, prior to the date of the conference you have in front of you, I think an inquiry went to Imperial Oil Co., asking for some further information. I believe that that information was produced by Imperial Oil Co., at the conference of which you have a record.

(The record of conference referred to was marked "Exhibit No. 1097," and is included in the appendix on p. 9843.)

Mr. AMBERG. I want you to bear in mind after the Steffanson recommendation and certain other ones in the meantime, and up until the early spring of 1942—it had been determined not to go ahead with the project. That might explain why no surveys at length have been made.

Senator KILGORE. Is Dean Graham a petroleum engineer or geologist?

Mr. AMBERG. I think he is a mining engineer and transportation engineer. I expect him back in town tomorrow.

Senator KILGORE. It might be better to recess and have another little hearing tomorrow afternoon.

General COVELL. May I add here that General Pyron, just before he came in the Army, was formerly vice president of Gulf Oil Co., and is one of the most experienced production men in the United States.

Mr. HALLEY. General Pyron, what investigations did you make of this before the conference of April 29?

General PYRON. I had knowledge of the geology of the situation.

Mr. HALLEY. There were some—

General PYRON (interposing). It produced for 20 years.

Mr. HALLEY. Do you know how much?

General PYRON. We were furnished that by Imperial Oil Co., and the testimony of the geologist and petroleum engineer—

Mr. HALLEY (interposing). Were you familiar with the problem of getting further production and also the problem of getting oil out of Norman Wells to a point where it could be used?

General PYRON. We knew that the mountain ranges had to be crossed and it would be quite an expensive proposition.

Mr. HALLEY. Did you have a survey?

General PYRON. No, sir; we did not.

Senator KILGORE. General, if in peacetime, with the limited market around Whitehorse and Fairbanks, would Gulf Oil Co. go into a project like that?

General PYRON. No, sir. It never was and never will be a commercial project.

Senator KILGORE. That is why I am talking about the sale value of the pipe line. It can't be a commercial project. There is no sale value in this stuff.

Mr. AMBERG. What would an engineering survey, or how long would it have taken in the spring of '42, in the then exigent situation, to have made a complete engineering survey of this project?

General PYRON. I think General Worsham has been on the ground and could tell you how long it has taken his engineers to break through there.

General WORSHAM. This was started like any other cost-plus-fixed-fee job, with plans being developed as the work progressed. We knew we had to get from Norman Wells to Whitehorse, and, to answer your question, to know the exact route is not determined until finally a man on a caterpillar truck or tractor finds out. He goes into the muskeg or not. We have had to take elevations across there.

Mr. HALLEY. I am trying to find out what information General Pyron had other than the general information available to any informed person in the oil business, which would be the regular annual reports of the Imperial Oil Co.

General WORSHAM. They also showed geological data which the general public wouldn't know.

General PYRON. Geological maps and production record.

Mr. HALLEY. There were geological maps, and they showed they had what production at that time?

General PYRON. The wells produced 60 or 90 days annually, and a small amount was refined and stored for local consumption. They would not produce through the winter months, but they did have the record of the production, the record that the wells produced from the beginning up to that time.

Mr. HALLEY. What else was made available to you besides those production records?

General PYRON. The general local geological data.

Mr. HALLEY. How much of a geological survey did they have?

General PYRON. Geological survey and subsurface map based on the well log.

Mr. HALLEY. Over how large an area?

General PYRON. Comparatively small one in subsurface work. I can't tell you just what acreage.

Mr. HALLEY. It has been found necessary to go far beyond whatever data they had at that time, has it not?

General PYRON. Oh, yes; yes, sir; to find the field to drill in almost all directions.

Mr. HALLEY. Did you have any information concerning the details of the terrain over which the pipe line would have to go?

General PYRON. Except we knew it was mountains and muskeg and we had no surveys; no, sir.

Mr. HALLEY. Did you have any detailed information whatsoever?

General PYRON. Except such maps as we had and such statements as made by flyers and a few explorers and miners who had been in that country.

Mr. HALLEY. Now, when you were with the Gulf Oil Co., before you entered on a project of a type of major importance, did you consult outside experts and technicians?

General PYRON. We relied on our own experts for that.

Mr. HALLEY. Did you have a large staff of experts?

General PYRON. Yes, sir.

Mr. HALLEY. What experts and technical consultants did you see or speak to in connection with the Canol projects?

General PYRON. We had a man who had drilled, and the geologist who had been on the ground, and the statements of their production in the depth of the wilds, and other geological information.

Mr. HALLEY. Did you consult any disinterested geologists?

General PYRON. No, sir; I didn't.

Mr. HALLEY. Did you consult any engineers on the transportation and construction problems involved?

General PYRON. I did not.

Mr. HALLEY. Do you know whether anybody did those things?

General PYRON. I can't speak for the engineers.

Mr. HALLEY. Do you know whether anybody discussed those things? I mean, do you know whether anybody discussed those matters at the conference of April 29?

General PYRON. Discussed very briefly and it was agreed that it would be an expensive proposition.

Mr. HALLEY. What or which matter do you mean, the whole general proposition was discussed briefly?

General PYRON. The proposition of getting materials in to drill these wells. We knew then that they had to be through this waterway, Great Slave Lake, and Mackenzie River, and the pipe line would be over rough terrain, over some muskeg, and through the mountains and through forest.

Mr. HALLEY. Well, did the Department of the Interior, or the Petroleum Administrator see it at all?

General PYRON. Was he consulted? Not to my knowledge.

Mr. AMBERG. At one point I think the Bureau of Mines facilities were used on pour point of the oil. That was at some later time.

Mr. HALLEY. At a later time, but none of these people were consulted before April 29, 1942?

General PYRON. Not by me.

Colonel WILD. The project was first of all what might be called ultraexpedient; second, it was in a foreign country over which at that time nothing so far appears that would have given the Petroleum Coordinator for War authority.

Mr. HALLEY. In addition to the conference of April 29, and the information which General Pyron says he personally had, were there any other memoranda, records, data, conferences, material of any kind, information, or assistance rendered to the persons who were responsible for the directive of April 30, 1942?

Colonel WILD. I think that in working the problem, the basic requirements of the Air Corps were put into the picture by General Streett and—

Mr. HALLEY (interposing). Anything else?

Colonel WILD. Other than what the Imperial Oil Co. produced, I don't know.

Mr. HALLEY. Do you know of anything, Mr. Amberg?

Mr. AMBERG. I know there are articles Steffanson transmitted to the War Department prior. I don't know whether this committee saw them.

(The report referred to was marked "Exhibit No. 1098," and is included in the appendix on p. 9846.)

Senator KILGORE. What is Steffanson with, Canadian National Railways? I have heard he is national agent for them.

Mr. AMBERG. I have no knowledge. I believe that was stated in the so-called Ruby report made quite a while ago for the Petroleum Administrator.

(The report referred to was marked "Exhibit No. 1099," and is included in the appendix on p. 9849.)

Mr. HALLEY. Nobody knows of any other matters which came to the persons responsible?

Mr. AMBERG. I think you will have to ask General Pyron, and I will endeavor to have Dean Graham here. I am not sure he will be here in time for hearing on Wednesday.

Senator KILGORE. Can we assume there was no other information available to those persons unless you in the next week advise the committee of such information which they had?

Mr. AMBERG. I can't tell what they looked at. They will have to tell you.

Mr. HALLEY. Will you advise us—will you ascertain that and advise the committee?

Senator KILGORE. The information received was received from the Imperial Oil Co. and its representatives. The only on-the-ground information received was so received.

Colonel WILD. Those were the only people you could get it from. They were the only people who had it.

Mr. AMBERG. The information seems to have been more than supported by later discovery.

Senator FERGUSON. Is there anyone here who knew as to who owned the refinery before it was purchased by the Government?

Mr. AMBERG. Yes. You are speaking now of the refinery now being built at Whitehorse.

Colonel WILD. I think I can answer that question.

Senator FERGUSON. Who owns it?

Colonel WILD. Bareco Refinery Co., Corpus Christi, Tex.

Senator FERGUSON. Operating at that time?

Colonel WILD. I am not sure, but it was one of a list of half a dozen or so given to us by Mr. Ickes' office as refineries that were available for this project.

Senator FERGUSON. And how much did it pay the Government for it?

Colonel WILD. I haven't the figures in the back of my mind. We could furnish it.

Senator FERGUSON. Is it in the figures we have here today?

Colonel WILD. Included in there, but I could not pick it right out.

Senator KILGORE. Was there any information by the Canadian Bureau of Mines or similar agencies of the Canadian Government?

General WORSHAM. Before the initiation of the directive?

Mr. AMBERG. Do you have any from the Canadian Bureau of Mines?

General PYRON. A number of technical papers written over a period of years, some by the Canadian people, some by Americans, that were available to anybody.

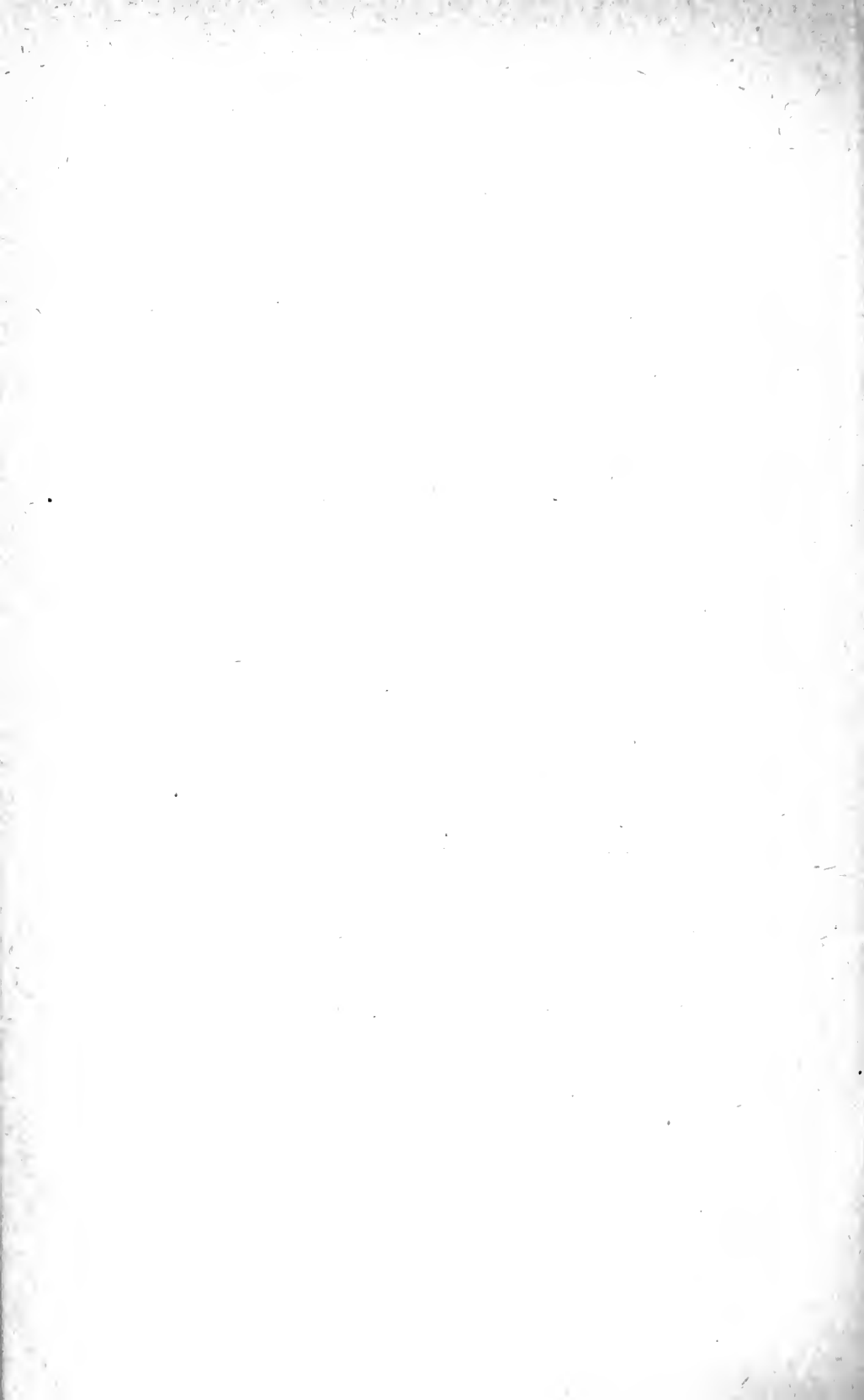
Mr. AMBERG. Were those within your knowledge at that time?

General PYRON. Yes, sir.

Senator KILGORE. I would like to see it.

We will adjourn.

(The subcommittee adjourned at 7:10 p. m.)



INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

FRIDAY, NOVEMBER 12, 1943

UNITED STATES SENATE,
SUBCOMMITTEE OF THE SPECIAL COMMITTEE INVESTIGATING THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

EXECUTIVE SESSION ¹

The Subcommittee on Canol Projects met at 9:15 a. m. in room 455, Senate Office Building, Washington, D. C., Senator Homer Ferguson, Michigan, presiding.

Present: Senator Homer Ferguson.

Present also: Rudolph Halley, executive assistant to the chief counsel; and H. J. Robinson, investigator.

Present also (representing the War Department): Julius H. Amberg, special assistant to the Under Secretary of War; J. H. Graham, special assistant to the Under Secretary of War.

Senator FERGUSON. Mr. Graham, will you raise your right hand? Do you solemnly swear in the matter now pending before the committee you will tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. GRAHAM. I do.

TESTIMONY OF J. H. GRAHAM, SPECIAL ASSISTANT TO UNDER SECRETARY OF WAR, WAR DEPARTMENT, WASHINGTON, D. C.

Mr. HALLEY. Mr. Graham, did you have any contacts with the question of whether or not the so-called Canol project should be undertaken?

Mr. GRAHAM. Yes.

Mr. HALLEY. At that time, were you employed in an official capacity by the War Department?

Mr. GRAHAM. As adviser, technical adviser, to General Somervell, on the basis of \$1 a year.

Mr. HALLEY. Were you technical adviser on petroleum matters or on all matters?

Mr. GRAHAM. No; I am not a specialist in anything. My whole background, as far as the War Department is concerned, is my familiarity with the history, the build-up, the connections, in the A. E. F. in the last war, and there I had charge of railroad and dock construction of the whole A. E. F., and naturally wherever a thing came up about railroads or anything of that sort, highways, General Somer-

¹ Publication authorized by the chairman, January 15, 1944.

vell would consult me on that. And that is my general value in the War Department.

Mr. HALLEY. Have you any specific experience with reference to Canada or Alaska?

Mr. GRAHAM. No. I can probably give you the whole story, and then you can ask me definite questions afterward, if you want to proceed that way.

Mr. HALLEY. I would like to, but what I was trying to develop first, I think mainly from your point of view, is your qualifications.

Mr. GRAHAM. I am an engineer; 20 years' practice before the war.

Mr. HALLEY. But not a petroleum engineer?

Mr. GRAHAM. No; I never pretended to be a specialist in any type of engineering, and don't now. But while over in France I was in railroads, but not petroleum. I have built pipe lines; yes, and I have been in the petroleum business, but I don't pretend to be an expert. I give my reactions on it, turn it over to experts. We are supposed to have an expert in this one also.

Mr. HALLEY. Did you have any expert knowledge with reference to Canada or the Yukon territory?

Mr. GRAHAM. No; all that, I got by investigation.

Mr. HALLEY. Now, I think if you could tell the committee the story, that would be best.

Mr. AMBERG. May I suggest that you ask what positions he has held, both in the last war and at the university, and so forth.

Mr. HALLEY. Surely. Will you go ahead and state that?

Mr. GRAHAM. In the last war I went over to France very early as a captain of engineers, was promoted successively to colonel of engineers. I had general supervision of all the railroad and dock construction of the A. E. F., and General Somervell served under me for a while. That is where I first knew him. I looked on him as a youngster then.

After the armistice, I prepared the general report on installations. I had charge, also, of all the highway repair and construction of the A. E. F. And then, about the time I was thinking about coming home, having been over there 2 years, I was ordered by General Harford to the Liquidation Commission, and succeeded General Dawes on that Commission in June of 1919, and served the rest of the time of the life of the Commission until May of 1920. Therefore, I know the A. E. F. from soup to nuts—and that is my value. I served on all the boards—I think there were four or five—of the lines of communications. I was the only officer in the A. E. F. who did serve on all of them. General Jadmin served on three and others served on one or two, but I served on all five. Therefore, I am supposed to be an expert on lines of communications, in wartime, not in peacetime. I have never had anything to do with shipping in peacetime—only in war.

Since then, in connection with this story, I became acquainted with Frederic Delano. He was then Deputy over in France. He was then Deputy Chief of Transportation. Later on, when I came on the Commission, I employed him to make the settlement with the French railroads in behalf of the Commission. That established the friendship that has lasted up to the present time. And it comes in on this story, because as soon as General Somervell thinks of railroads or a proposition comes to him in regard to railroads, highways, or Colonel Delano, or anything Colonel Delano is identified with, General Somer-

vell immediately thinks of me and sends for me. And that is the way I happened to get in on this Canol project.

Mr. HALLEY. Would you state what positions you held since the last war.

Mr. GRAHAM. Since the last war I have been president of the Seaboard Finance Investment Co. When I came back I was supposed to be an expert on liquidation, having completed probably the biggest liquidation job in the world at that time. So I took on liquidation. I liquidated a good many companies. Some of them I built up.

I have been president of a good many companies, purely from the point of view of liquidation. Some of those were oil companies, incidentally.

Mr. HALLEY. Were you handling the financial or engineering end?

Mr. GRAHAM. No engineering. Engineering and administration don't mix.

Mr. HALLEY. You were doing financial administration?

Mr. GRAHAM. Financial administration only. You have to do one or the other, so I employed engineers always.

Then, after that, I retired. My old colleagues of engineering at the University of Kentucky asked me to come there as dean and rebuild the college, and I went back in 1935 and have been there ever since, until the defense program started and I came up to do what little I could to help Somervell out: first, on construction. When he was head of the Construction Division, I did no engineering work at all for him. It was organizational work. I traveled a good deal. I always paid my own expenses and gave him a report of organizational matters here, there, and everywhere over the country.

When he came up to G-4, I followed him, and I stayed under this condition for 2 years, simply written, "technical adviser to——." I was on a dollar-a-year basis. I was one of the few dollar-a-year men that was investigated by the F. B. I. The President—back in the latter part of 1940, you know, the newspapers were pounding the dollar-a-year men pretty hard. The President gave orders (nobody knew about it) that every dollar-a-year man proposed had to be investigated by the F. B. I. I happened to be one of five whose names came on at that time.

Mr. HALLEY. Would it be all right now, Mr. Amberg, to get on to the actual Canol proposition? Have you brought out what you wanted to?

Mr. GRAHAM. Anything else, Mr. Amberg?

Mr. AMBERG. One other thing: Have you had any connection with mining engineering?

Mr. GRAHAM. Yes; I was in coal mining early.

Mr. HALLEY. From the engineering or administrative end?

Mr. GRAHAM. Engineering, very early in my career.

Mr. HALLEY. You mean before the last war?

Mr. GRAHAM. I go back to 1900, and my engineering work career started in 1898. I was in coal mining. I have been in metal mining. When I went to the college of engineering, I had never joined any of the societies—American Society of Civil Engineers, Electrical Engineers—none of them. I said, "I can't be a dean of a college of engineering without belonging to some of the National societies," so I qualified for membership in the American Institute of Mining and Metallurgical Engineers. That was purely to be in a society. I

couldn't be a dean of a college of engineering without being in one of the societies. It is just not done.

Mr. HALLEY. Now will you tell the story of the Canol projects.

Mr. GRAHAM. I go back to December of 1941. General Somervell had just been made Assistant Chief of Staff of G-4, just after Pearl Harbor. His office at that time was really a post of command for the whole War Department. Everything was very busy. I was with him, occupied the room just outside of his, along with General Robinson.

The Chief of Engineers had sometime during December, shortly after Pearl Harbor, received a directive to survey and construct a highway from somewhere near Edmonton through to Fairbanks. I don't know who issued that order. All I know is that it went direct to the Chief of Engineers.

Senator FERGUSON. What was that date?

Mr. GRAHAM. Somewhere in December, as I remember, of 1941, just after Pearl Harbor. Whether it was the 1st of January—I place it about Christmas time.

Early in January General Sturdevant, of the office of the Chief of Engineers, came in with his maps to General Somervell, with a projected location for a highway out of Edmonton, and with a letter from Fred Delano offering as a substitute for a highway the construction of a military railway from Prince George to Fairbanks by way of the Rocky Mountain Trench.

So—as I say, as soon as you mentioned railroads and Fred Delano's name, either jointly or severally, I came into the mind of Somervell. So he sent for me. That started my study of the whole program. I never went to Alaska. Of course, it was midwinter then. I made contact with Delano—he was at that time Chairman of the National Resources Board—and he began to try to prove to me that the railroad should be built in lieu of a highway.

The Rocky Mountain Trench really begins at Seattle and runs northwest. There is a rail connection between Seattle and Prince George. What he wanted to do was to build from Prince George through the Rocky Mountain Trench with the Cascade Range on the west and McKenzie Range on the east. I began to investigate that. He introduced a tremendous number of witnesses—40 or 50. It seemed to me I was over there in his office about 2 afternoons every week, maybe 3, listening to long conversations and discussions about that route.

I soon became convinced that from the point of view of ground, terrain, topography, the route was the way to go, there was no doubt about that, for either a highway or for a railroad. But the question was, Why didn't we go from Edmonton through the existing string of airways? So I began to investigate it from that angle.

I got in touch with General Streett of the Air Service—he was then on the General Staff—and he brought up three, I think it was three, of his officers from somewhere in Wyoming who were then ferrying planes or supervising the ferrying of planes across Alaska from Edmonton to Fairbanks, especially pursuit planes. And that gave evidence that that was the best way, airway, across Canada.

To check that, we asked the Pan-American Airways to send their vice president in charge of their western lines, with offices at Seattle. He gave us the information that they flew transport planes from Seattle to Prince George through Whitehorse to Fairbanks. But

they always carried enough gasoline, in case they couldn't make a landing at Whitehorse on account of fog, they would then go on to Fairbanks.

The air people offered that they couldn't do that, that a transport plane could go above the fog, but a pursuit plane could not, with just one man, no navigator, and so forth.

The Pan American man also stated that when fog got too bad they detoured around by Edmonton and went over the other route, what we call the C route out of Edmonton to Whitehorse.

That was no doubt the best route. So that tied the highway down as a connecting link between Edmonton, the airfield at Edmonton, and the string of fields from there on through to Fairbanks.

Senator FERGUSON. Did they conceive the idea of the highway before they did the airway?

Mr. GRAHAM. No, sir; the highway came about because of the airway. That was the best route across there.

Then they built—the Canadian Pacific, I think it was, or one of the Canadian railroads—a series of airfields across that route. It is ungodly country up there. They spent, as I have been told, six and a half million dollars on that construction.

Senator FERGUSON. On putting the airfields in there?

Mr. GRAHAM. Yes. When we went in after Pearl Harbor and started using those fields to get to Alaska, we had crashes. Whenever a boy would come down between one of those fields, for any reason whatsoever, there was no way of getting to him and no way of his getting out.

Senator FERGUSON. But if he doesn't come down near the highway, you are no better off.

Mr. GRAHAM. That is true. He has to follow the highway.

Senator FERGUSON. But the highway isn't a straight line between the airfields.

Mr. GRAHAM. No; but he can follow that, at any rate, and it is easy to get to him.

But those are about 400 miles apart, 350 to 400 miles. If he came down anywhere more than 100 miles from an airfield, he was a total loss.

Senator FERGUSON. Were you thinking of the highway before we got into the war, before Pearl Harbor?

Mr. GRAHAM. No, sir; I never thought of it before General Somervell called me.

Senator FERGUSON. Had the United States Government thought of it?

Mr. GRAHAM. There had been talk. I don't know, because I didn't hear it myself; it is all hearsay, but there was a proposal of building a highway before Pearl Harbor, but the War Department considered it and turned it down.

Senator FERGUSON. When did the Canadian Government build the airfields?

Mr. GRAHAM. I don't know. They are probably 6 or 8 years old. I didn't go into it. I only went in to establish the fact that our Air Force, in ferrying pursuit planes, mind you, across, wanted that airway, and that they wanted a connection, no matter what it was—a trail, roadway, or highway—between those airfields. That was the reason that it was done. Who it was directed by, I don't know to

this day. I don't think General Somervell knew about it, because he had just been made G-4.

Senator FERGUSON. It was merely a connecting link between the air-fields?

Mr. GRAHAM. That is all it was to be, as the first impression.

Mr. HALLEY. In addition to rescuing people, did it have anything to do with supplying the fields with gasoline and so forth?

Mr. GRAHAM. Naturally, everything had to go in by air, food and everything else, so the original specification at the time that I was making my study, put on it by the Chief of Engineers, was a 16-foot roadway with gravel surface. That is what I took as the basis of my study. It showed a route from Edmonton through to Whitehorse and Fairbanks was the best airway from the point of view of the Air Service and the Pan American, which was the only company that had had any experience in that area.

Then it was a question, shall we build a railroad too? That was being urged by Delano as a means of communication with Alaska.

Senator FERGUSON. What was Canada urging?

Mr. GRAHAM. Nothing.

Senator FERGUSON. Didn't they want a highway?

Mr. GRAHAM. I have never heard that. I don't know. I don't know anything about the contractual relations with Canada. I did come in contact, as I will tell you in a moment, with some of the Canadian Government on another part, another phase of it.

Delano didn't want a highway; he wanted a railroad through the Rocky Mountain trench. So then I made a study of what the capacity of a railroad would be in point of tonnage, how many men it would supply up in Alaska, and on the other hand, how much a roadway, gravel surface, would carry. I made a report on that to General Somervell, and we put that up to the War Plans as to how they were going to defend, whether they were going to want two or three hundred thousand men in Canada or not.

Mr. AMBERG. You mean Canada or Alaska?

Mr. GRAHAM. In Alaska, I mean.

During the course of the study, the question of rail came up for the railroad, and there I did meet two of the railroad officials of the Canadian Government in New York, with Delano, and they agreed that if the road was built, they would furnish about 650 miles of 60-pound rail track. That was about all they could do—and also some water facilities for watering locomotives. That was about the whole thing. That was my only contact with the Canadian Government.

But the War Plans came back with the statement that they proposed to defend Alaska by air; they didn't propose to maintain a large body of troops in Alaska. On that, the railway was abandoned.

In the meantime, the plans for a highway had gone on. During all that procedure, we were hunting for fuel. I had long talks with experts from various agencies here in Washington—the Bureau of Mines and others that Delano brought in, as to coal in Alaska, along the Canadian National Railroad, the possibilities of coal through the trench, the possibilities of coal in Alaska.

Senator FERGUSON. What did we want the coal for?

Mr. GRAHAM. Railroad operation.

Senator FERGUSON. Here in America?

Mr. GRAHAM. No; through the trench, that railroad that he had proposed to build. We wanted to know all the facilities we had to have.

Senator FERGUSON. Fuel for the railroad.

Mr. GRAHAM. For the railroad that he was proposing, which was later turned down.

We also studied the fuel, the petroleum situation, around Edmonton. There is oil there, but it is a very heavy oil, only fit for road oil, fuel, and so forth. There is very little gasoline in it. We investigated that and got the opinion of a good many men, got some reports on it.

Stefansson also heard of all this going on—railroad, highway—and he came in first to Delano; that is the first place I saw him. I heard him talk for 2 hours on the water route, the advantages of it from McMurray Waterway through Great Slave Lake and down to McKenzie, when he came to my office one time and talked for a long time. He also saw the Under Secretary.

Everybody who came in there that knew anything about that central Alaska and Canada mentioned the Norman Wells. We didn't get any definite detailed information on it, but as I say, we were hunting for fuel for oil. General Streett of the Air Service was very much interested in fuel, so it was mentioned by the representatives of B. E. W., the Board of Economic Warfare, that sat with us. Finally, after the railroad had been condemned and we were set on the highway all the way through, I wanted to get some information. I told General Somervell we had heard about the oil up there from many people but nothing definite. So, General Carter had also sat in on all these interviews—not with Delano—

Senator FERGUSON (interposing). What was Delano's job then?

Mr. GRAHAM. He was chairman of the National Resources Board and had been for many years. He is an old railroad man, grew up on railroads. He resigned, I think, from the first Federal Reserve Bank board to go to France in the last war. I didn't know him before the last war. I knew him entirely in France and since. I didn't know anyone connected with Standard of New Jersey. Standard of New Jersey, of course, was the parent company of the Imperial Oil Company in Canada, which in turn owned the Norman Wells. I didn't know any of that company, so General Carter communicated with them and we asked them please to send two or three technical men who knew that area.

They sent Dr. Link, an engineer whom I do not know. They brought their maps, their geological sections, and so forth. General Pyron, who was an expert in oil production, was there. We listened to them for about 2 hours. They stated that they had produced for 5 or 6 years about 500 barrels of oil a day, to take care of local business on the McKenzie River.

Senator FERGUSON. Did they tell you they only produced in the summertime?

Mr. GRAHAM. Yes, they produced in the summertime, because there was no traffic in the winter. They plugged the wells. They also said it was about 40 to 42 gravity oil, which is pretty hard—it is about as good as you get in the Oklahoma fields—and that it would flow, they could pump it at 50° below zero, and other information.

So, based on that information and the statement that they thought—they were very conservative; it was hard to pull definite answers out of them—finally they agreed that it might be possible to get up to 3,000 barrels a day.

Senator FERGUSON. Out of their wells then?

Mr. GRAHAM. Not in their wells, no, but by additional drilling.

Mr. HALLEY. Do you mean that they considered that the maximum possible output?

Mr. GRAHAM. No, they didn't say "possible," but we put it to them. How much did they feel it could be increased by drilling 9, 10, 12 more wells. And they said finally that they were pretty sure it could be gotten up by the following fall, with some drilling—about 9 wells, with 1 or 2, maybe, dry holes, that you could get it up to 3,000 barrels a day and sustain that.

Mr. HALLEY. But that was the highest figure to which they would go?

Mr. GRAHAM. That was the highest figure.

When I wrote my memorandum to General Somervell on that, I set the whole thing, based on that 3,000—4-inch pipeline on that distance, with pumping stations anywhere from 70 miles on the flat to 30 miles in the mountains—or 20 miles—would give about 3,000 barrels a day. And that predicated the size of the refinery, cracking plant. Oil of that gravity should yield, by cracking, a motor supply of fifteen to eighteen hundred barrels a day.

That particular meeting occurred about April 27. Therefore, I wrote a memorandum to General Somervell on April 29, in which I outlined certain things which I recommended be done, and sent a copy of the memorandum to each one who was present at the meeting.¹ Since then, I have had nothing to do with it whatever.

Mr. HALLEY. Is this memorandum of April 29 the one you refer to?

Mr. GRAHAM. Yes.

Mr. HALLEY. Is that your memorandum?

Mr. GRAHAM. Yes. General Pyron, General Streett of the Air Service—General Streett, I remember, made the remark at this meeting that if you would get production up there along that line, it would be a godsend. I admire him very much; I think he is a very able officer in the Air Service. He probably influenced me more than anybody else toward making this recommendation.

Senator FERGUSON. Did you go into the proposition of getting it from Skagway to Whitehorse by rail?

Mr. GRAHAM. Yes, sir. We went to the Navy and asked them if they would guarantee to keep open the sea lanes, and they said no, they would not guarantee.

Senator FERGUSON. What do you mean, "guarantee"?

Mr. GRAHAM. Well, war was going on, and if we guarantee the supply of petroleum and products through to Alaska—

Senator FERGUSON (interposing). We knew, though, that we couldn't get this pipe line for several years.

Mr. GRAHAM. That is all true, but that is the answer they gave us.

Senator FERGUSON. Did you ask them if they could guarantee it after 2 years?

Mr. GRAHAM. No.

¹ See Exhibit No. 1095, appendix, p. 9842.

Senator FERGUSON. Don't you think that would have been important?

Mr. GRAHAM. Probably it would.

Mr. HALLEY. Could you have built the pipe lines and refinery without using the sea lanes? Could you have gotten all that material up by land?

Mr. GRAHAM. That is true.

Mr. HALLEY. You mean you could not have done it; is that right?

Mr. GRAHAM. We got certain material up that way.

Senator FERGUSON. You couldn't get it any other way, could you?

Mr. GRAHAM. You could have built your pipe line by going in by route D, taking your refinery that way.

Mr. HALLEY. It would have taken years longer, though, would it not?

Mr. GRAHAM. It would have taken longer, yes.

Senator FERGUSON. How long would it take to take it up that route?

Mr. GRAHAM. They carried 8,000 tons of pipe line up that route. It took longer than I expected it to.

Senator FERGUSON. You didn't consult the Navy as to how long they thought it would be before they could guarantee the passage?

Mr. GRAHAM. No.

Senator FERGUSON. Don't you think that was very material?

Mr. GRAHAM. No, very frankly, Senator, I didn't go to the Navy myself. That was done by someone else, I don't know who.

Senator FERGUSON. Do you know whom they consulted?

Mr. GRAHAM. No, I do not. They just reported to me that the Navy would not guarantee to keep the sea lanes open to Alaska.

Mr. HALLEY. Was the word "guarantee" actually used?

Mr. GRAHAM. I can't tell you.

Mr. HALLEY. Was the Navy asked for an absolute guaranty, or assurance of probabilities?

Mr. GRAHAM. Nothing formal that I know.

Mr. HALLEY. Were they asked informally whether they were absolutely sure—

Mr. GRAHAM (interposing). I didn't do it myself. I couldn't answer that.

Mr. HALLEY. On what did you act, what information?

Mr. GRAHAM. Information around our office in this group that were talking about it.

Mr. HALLEY. That the Navy couldn't give an absolute guaranty?

Mr. GRAHAM. I don't know whether it was an absolute guaranty. They simply said they would not guarantee. Whether the word "guarantee" was used, I don't know.

Mr. HALLEY. But you got the meaning, "guarantee," from what was said; was that the idea?

Mr. GRAHAM. That was the idea that came to me. It was a hazardous operation. The Japs were in there, they had some shocks in the west Pacific, and they didn't know just how the situation was going. I wouldn't have blamed them at all for not guaranteeing.

Mr. HALLEY. Did you feel that a guaranty was necessary?

Mr. GRAHAM. We wanted their opinion: Could we take oil up that way?

Senator FERGUSON. Did you ask them about taking material to build the highway and the pipe line?

Mr. GRAHAM. In considering the railroad, I didn't consider going in, hardly, except by straight up the trench. On the highway—that I didn't go into at all, sir.

Senator FERGUSON. You didn't consult the Navy?

Mr. GRAHAM. All this was getting in the central part, getting close to Alaska. The highway was the—

Senator FERGUSON (interposing). Did you consider the cost of this oil, getting the oil?

Mr. GRAHAM. No. That was the Chief of Engineers. I made this one recommendation, laid it on the desk, and haven't touched it since.

Senator FERGUSON. But you had no advice as to what it would cost to get the oil?

Mr. GRAHAM. I didn't know. I know approximately how much it would cost in ordinary times or ordinary places, but I didn't know how this was going to be executed. I didn't even know whether it was going to be executed.

Mr. HALLEY. Did you consider the cost in material—how much material would be needed, how much steel would be needed, how many bridges would have to be built?

Mr. GRAHAM. No. You have in here, "Survey and construct a pipe line by the most feasible route." I didn't know where the route would be.

Mr. HALLEY. You had no idea how much material would be required?

Mr. GRAHAM. No.

Mr. HALLEY. I would like to get back to that meeting, if I may, Dean Graham. Did anybody at the meeting voice opposition to the proposal that a pipe line and refinery be built?

Mr. GRAHAM. This was not voted on, if you mean that, by this meeting. All I did was, when I wrote this thing out, to send each man a copy of it to let him make his own objections and discussions if he wanted to.

Mr. HALLEY. I am referring to your discussions on April 27 with these men. I understand that there were informal discussions.

Mr. GRAHAM. Yes.

Mr. HALLEY. But did anybody state that he was opposed to the proposal?

Mr. GRAHAM. No; not that I know of.

Mr. HALLEY. They were unanimous in agreeing that the proposal should be undertaken?

Mr. GRAHAM. No. I said there wasn't any vote. I don't know whether they thought it ought to be done or not.

Mr. HALLEY. What type of discussion did you have?

Mr. GRAHAM. We discussed there whether the oil could be gotten, two or three thousand barrels a day; and if so, could it be made available over to Whitehorse and to the air fields.

Senator FERGUSON. Dean, did you consider that your recommendation, that they do this?

Mr. GRAHAM. That is my recommendation. I state so, sir.

Senator FERGUSON. That is what I am getting at. It is a recommendation that they do it.

Mr. GRAHAM. From me, personally. I recommend. I didn't ask these men—I'll be perfectly frank—I recommended that the chief of

engineers be authorized as follows, and then having done that, written this, sir, I sent it in to Somervell, just Somervell, and let him do what he pleased. I didn't care. I wasn't urging anything. Then I sent a copy of it to each one of the men whose names I mentioned.

Senator FERGUSON. Did you consult with our petroleum organization here, Ickes?

Mr. GRAHAM. No.

Senator FERGUSON. Before you made the recommendation, you didn't consult him?

Mr. GRAHAM. I didn't even know that Mr. Ickes had a petroleum organization, sir.

Senator FERGUSON. Did the Army have any organization?

Mr. GRAHAM. General Pyron was the man representing the Under Secretary of War, and General Somervell on petroleum matters. He was present at all these meetings.

Mr. HALLEY. Dean Graham, did you have, or did you make, any studies in writing other than that one memorandum?

Mr. GRAHAM. No; the other one was March 9. I wrote a memorandum for General Somervell on the comparative carrying capacity of a highway and a railroad, and on that basis the railroad was condemned.

Mr. HALLEY. Referring only to the oil proposition, did you have any studies made, or did you write any memoranda or receive any memoranda on any of the details that would underly that memorandum that you now have on your lap?

Mr. GRAHAM. No.

Mr. HALLEY. Is that the only document?

Mr. GRAHAM. That is the only piece of paper.

Mr. HALLEY. Did you get oral reports from people on the terrain that would have to be covered to build the pipe line?

Mr. GRAHAM. We got a great many verbal reports on all the terrain that had to be covered, such as was known. We had a map—they were air maps, taken by air—of all that terrain between Norman Wells and McKenzie River and Whitehorse and that area.

Mr. HALLEY. From whom did you get such reports?

Mr. GRAHAM. What do you mean? I only had maps, not reports.

Mr. HALLEY. From whom did you get verbal reports, oral reports?

Mr. GRAHAM. On the terrain between there—Stefansson, other men that had been through there. We had very few.

Mr. HALLEY. Were there any besides Stefansson?

Mr. GRAHAM. None that I remember particularly.

Mr. HALLEY. Did Stefansson recommend that the pipe line go to Whitehorse, or did he recommend that the pipe line go to Fairbanks?

Mr. GRAHAM. He mentioned, as I remember, barging it down the river to a point about 3 or 4 miles opposite from Fairbanks, and then pipe-lining over.

Mr. HALLEY. Why did you decide to pipe it into Whitehorse rather than Fairbanks?

Mr. GRAHAM. Because you would have to have barges one way and then change and pipe again. Then, besides that, I didn't know which way it was to go, and I said the most feasible route.

Senator FERGUSON. Why did you want to put it at Whitehorse?

Mr. GRAHAM. Sir?

Senator FERGUSON. You said the most feasible route to Whitehorse. Why wouldn't we want to build the refinery on our own soil?

Mr. GRAHAM. If anyone had come back to me, had the question been referred to me again later on, a month or 2 months afterward, and said, "Move the thing to Fairbanks," I would have said, "Certainly. All right." I had no choice. Whitehorse is right in the middle of the air route, and that was the only theory I had in placing it there.

Mr. HALLEY. Was your theory in recommending this project that the purpose in military matters—you are interested in the ultimate purpose of a project, its mission, so to speak—that the purpose of this project was to supply aviation fuel for the airplanes?

Mr. GRAHAM. Aviation and motor fuel.

Mr. HALLEY. Along the highway?

Mr. GRAHAM. Yes. Whitehorse was the middle of it. Frankly, you could go both ways. The adding of the pipe line down to Skagway, the pipe lines to Fairbanks—all that has been added. I considered using it to supply motor fuel.

Senator FERGUSON. You had nothing to do with the other lines?

Mr. GRAHAM. No; nothing at all. After I wrote that memorandum, Senator, I was through.

Mr. HALLEY. Now, you considered that it was to supply, then, aviation and motor fuel, along the highway?

Mr. GRAHAM. Yes; that is all.

Mr. HALLEY. Did you obtain estimates of how much such fuel would be required along the highway?

Mr. GRAHAM. If any estimate had been made at that time, it would have been a pure guess, because you don't know the type of motor—I mean the weight. I would say 2½-ton trucks. If you are going to have 27,000 men, or 1 division in Fairbanks, it would mean so many trucks.

Senator FERGUSON. But you didn't go into that?

Mr. GRAHAM. No, sir. The Chief of Engineers is qualified to pass on all those things, and did. I have seen reports from him saying how much motor fuel you would get and how much 100-octane gasoline you would get in building and designing the refinery.

Mr. HALLEY. But you didn't know what the requirements were?

Mr. GRAHAM. No.

Mr. HALLEY. Did you know what the output in terms of gasoline would be of that 3,000-barrel-a-day refinery? Could you estimate that?

Mr. GRAHAM. If it was found to be 40 to 42 gravity crude, with modern equipment, the modern equipment that is 10 years old, the vintage of 10, 12 years ago, you could get 60 to 65 percent motor fuel out of a barrel of crude.

Senator FERGUSON. How much aviation fuel, 100 octane?

Mr. GRAHAM. In aviation fuel, sir, you would have to drop down to about 30 percent aviation fuel, and perhaps 20 to 25 percent motor fuel.

Senator FERGUSON. When you are talking about aviation, are you talking about 100 octane?

Mr. GRAHAM. I always thought, for transport purposes, from 85 to 90; since they have boosted to 100, on account of combat service.

Mr. HALLEY. Would it be a fair estimate to say—

Mr. GRAHAM (interposing). Fifty percent.

Mr. HALLEY. A total of about 1,500 barrels a day would be produced?

Mr. GRAHAM. If you have got 3,000 barrels produced and through the pipe line over to the refinery, you would be sure of getting 50 percent, divided in some proportion, depending on which you wanted, of aviation gasoline as against motor fuel.

Mr. HALLEY. That would be about 1,500 barrels a day?

Mr. GRAHAM. Yes. Then you would have in addition to that, a certain amount of gas oil or Diesel-engine oil, to the extent of about 500 barrels a day.

Mr. HALLEY. Did you know whether or not the particular petroleum produced at Norman was suitable for making aviation gasoline?

Mr. GRAHAM. The only thing I knew was, it was quoted to be 40 to 42 gravity.

Mr. HALLEY. Would you be surprised to know today, to make aviation gasoline out of that petroleum, it is still necessary to take through that hazardous sea route, a good proportion of the components of the aviation gasoline, up to the refinery?

Mr. GRAHAM. No; not particularly. It depends on how you want to make it.

Mr. HALLEY. Now, assuming that the purpose of the refinery was to get a source of aviation gasoline that would be independent of the sea, what would be the purpose of having a refinery which required a large proportion of the components to be brought by sea?

Mr. GRAHAM. What components are carried up there?

Mr. HALLEY. We have your official Army records, saying that—what percentage?

Mr. ROBINSON. About 40 percent.

Mr. HALLEY. About 40 percent of the components of the aviation gasoline must be carried up.

Mr. ROBINSON. That is the alkylates. The refinery can produce the base naphtha, but the alkylates have to be brought in.

Mr. HALLEY. Would you feel that that accomplishes the purpose of the refinery?

Mr. GRAHAM. It produces in the middle of the field a certain amount.

Mr. HALLEY. You are not in the middle of the field.

Mr. GRAHAM. Whether the thing should have been started at that time, whether it should be abandoned some time along the way, that has all been discussed, and other people have made decisions. I have never had touch with it.

Mr. HALLEY. You have no opinion on that?

Mr. GRAHAM. None whatsoever.

Mr. HALLEY. And you had none when you wrote this memorandum?

Mr. GRAHAM. All I was trying to do—3 or 4 months before I had been put on a job to make a study of the thing. I went through it as conscientiously as I could. I listened to everybody I could get hold of, and I kept in touch with General Somervell, and I was putting a period to a very hard job when I wrote that. I didn't care a continental which way they did it.

Mr. HALLEY. But you recommended the project without qualification.

Mr. GRAHAM. Sure, I recommended.

Mr. HALLEY. Not merely a study, but—

Mr. GRAHAM (interposing). The only thing I could do, in retrospect today, knowing all the pros and cons and all the arguments—and I told this to the Moore committee of the Joint Chiefs of Staff 2 or 3 weeks ago—if I had to write that thing over again, I would change 3 or 4 words. I would have said, "Put the refinery either at Whitehorse or Fairbanks, as it may be." But I would have also put in a 6-inch line instead of a 4-inch line, and I would have put in a 10,000-barrel refinery instead of a 3,000. Other than that, the thing stands.

Mr. HALLEY. Why would you put in a 10,000-barrel refinery?

Mr. GRAHAM. Because you will need the oil up there before you are through and get it up there cheaper. Southern California is getting low.

Mr. HALLEY. You weren't considering cost, were you?

Mr. GRAHAM. You don't consider cost.

Senator FERGUSON. When you said you got it up cheaper?

Mr. GRAHAM. I didn't say I got it up cheaper.

Senator FERGUSON. You said you could get it cheaper.

Mr. GRAHAM. No; I didn't say you could get it cheaper; but you got it there.

Senator FERGUSON. Were you thinking about it for this war?

Mr. GRAHAM. Yes. I was thinking about it for this war.

Senator FERGUSON. They haven't got it completed.

Mr. GRAHAM. I know that, but that hasn't to do with that paper.

Senator FERGUSON. Isn't that the point that you were building it at a place where it was impossible to get it immediately?

Mr. GRAHAM. I don't even know that, sir.

Senator FERGUSON. Don't you think that is material?

Mr. GRAHAM. The thing about it, sir—at the time it looked like it could be done. Four-inch line—

Senator FERGUSON (interposing). America considers that they can do anything.

Mr. GRAHAM. Four-inch line is nothing but a gathering line.

Mr. HALLEY. You say that you would now propose a 10,000-barrel refinery?

Mr. GRAHAM. If I was doing it in retrospect.

Mr. HALLEY. And yet were you not told that the maximum oil that would be produced would be 3,000 barrels?

Mr. GRAHAM. That is true, but I know, in retrospect, that you have 10,000 or 20,000 barrels up there.

Mr. HALLEY. But you didn't know it at the time you recommended this.

Mr. GRAHAM. I didn't know it, and that is the reason for the 3,000 barrels. Those men said 3,000 barrels. That is what the whole thing is predicated upon. If I knew then what I know today, I would have said six and ten.

Mr. HALLEY. Would you say it even though you knew that 40 percent of the components of the aviation gasoline had to be sent up by the hazardous sea route?

Mr. GRAHAM. They have to be sent anywhere you make it then, the cracking plants in southern California or New Jersey.

Mr. HALLEY. But wasn't the purpose of the refinery to avoid the sea route?

Mr. GRAHAM. To have oil along a line of communication in a time of war.

Mr. HALLEY. Let me ask you this: On your proposal you would have gotten a total of fifteen hundred barrels a day, we agree, out of that refinery. Do you know the capacity of a single large tanker?

Mr. GRAHAM. Oh, yes.

Mr. HALLEY. It is well over 100,000 barrels, is it not? So that one trip of one large tanker—

Mr. GRAHAM (interposing). I have heard all that for a long time, and I would still say, in time of war have the production of your crucial material, the crucial stuff in the center of your line if you can. I am not arguing that. I didn't pass on this thing, Senator; I made a recommendation.

Senator FERGUSON. Dean, did you have in mind that we were going to transport lend-lease planes up over this highway, or what was this highway to be used for? And what was the transportation to be used for?

Mr. GRAHAM. As far as the highway is concerned, that had already been approved.

Senator FERGUSON. All right, what were the airfields to be used for?

Mr. GRAHAM. For ferrying planes across to central Alaska.

Senator FERGUSON. Just ferrying planes to Alaska, not to Russia?

Mr. GRAHAM. To the Aleutians and on beyond; yes. That was all talked about and discussed. You had the Japs in the Aleutians then.

Senator FERGUSON. But, Dean, at the same moment we were building airfields out on the coast, at Anitka we were putting in a big airfield so that we could get all our planes up that way, up to Juneau, at this very time. What were the fields on the inner route to be used for?

Mr. GRAHAM. For ferrying pursuit planes across, according to the Air Service.

Senator FERGUSON. To get them just to Alaska?

Mr. GRAHAM. You will have to get General Streett down here and talk to him about that. I don't know. I don't make war plans.

Senator FERGUSON. For how long a period was this to be?

Mr. GRAHAM. We didn't know, and you don't know today.

Senator FERGUSON. I realize that I don't know. I haven't found out yet what they wanted the highway for, or the airfields.

Mr. GRAHAM. I don't know, except—

Senator FERGUSON (interposing). But we had a Navy, didn't we?

Mr. GRAHAM. We thought we had one at Pearl Harbor.

Senator FERGUSON. Yes. Were we ever going to be able to defend the Aleutians by this inner route?

Mr. GRAHAM. I don't know. I don't deal with war plans, sir. All I know is lines of communication, and Alaska had been said to be a center in there to work for.

All right, along your lines of communication get all the material that you can possibly get there. Sometimes when you haven't got them—Rommel lacked a little gasoline, or he would have taken Cairo. It was just the lack of a few barrels of gasoline.

Senator FERGUSON. I wouldn't agree to that, that it was just the lack of a few gallons of gasoline.

Mr. GRAHAM. A few barrels. I didn't say "gallons."

Mr. HALLEY. I would like to pursue a little further your reasons for preferring to erect the pipe line and refinery rather than to ship

and store gasoline in Alaska. Did you consider that alternative at the time you wrote your memorandum of April 29, 1942?¹

Mr. GRAHAM. Yes; I considered it, except that you could bring in gasoline up to Skagway or to Whitehorse. You could have pumped it up, yes; but that would come from southern California.

Mr. HALLEY. What is wrong with southern California?

Mr. GRAHAM. Nothing, except it isn't anywhere near your lines of communication.

Mr. HALLEY. You had to get your equipment for the refinery up by boat, didn't you?

Mr. GRAHAM. Yes.

Mr. HALLEY. And you did get it up by boat.

Mr. GRAHAM. They did get it up by boat.

Mr. HALLEY. And if three or four large tankers had made just one trip——

Mr. GRAHAM (interposing). They could have stored it, and two bombers could destroy it.

Mr. HALLEY. Now that is the next point.

You have heard, of course, being a military expert——

Mr. GRAHAM (interposing). No; I am no military expert. I told you, I am not an expert on anything.

Mr. HALLEY. You are an expert on building military installations, are you not?

Mr. GRAHAM. No; I don't claim that, either.

Mr. HALLEY. For whatever kind of expert you had to be to write this memorandum for General Somervell——

Mr. GRAHAM (interposing). I wrote it as lines of communication, that is all.

Mr. HALLEY. For whatever ability you had to understand these problems, would you state whether or not you ever heard of dispersal of storage of equipment and supplies?

Mr. GRAHAM. Yes.

Mr. HALLEY. It would be possible to disperse 100,000 barrels of gasoline over many, many miles, would it not?

Mr. GRAHAM. Not particularly at Skagway.

Mr. HALLEY. You weren't confined to Skagway, were you, sir?

Mr. GRAHAM. Where else could you go?

Mr. HALLEY. Could you have stored it north and south of Whitehorse, along the Alcan Highway?

Mr. GRAHAM. After you brought it up there?

Mr. HALLEY. Yes.

Mr. GRAHAM. Yes.

Mr. HALLEY. And it would be very difficult for 1 or 2 or 20 bombing raids to get it all, would it not?

Mr. GRAHAM. Yes.

Mr. HALLEY. Now, would you state whether it would be possible for one single bomb to put your refinery at Whitehorse out of business.

Mr. GRAHAM. No; I wouldn't say one bomb could do it.

Mr. HALLEY. Suppose the bomb just happened to hit the one building in which you had your high-octane aviation gasoline plant.

Mr. GRAHAM. Whitehorse itself is protected pretty well by the Cascade Range.

¹ See Exhibit No. 1095, appendix, p. 9842.

Mr. HALLEY. You raised the question, sir, of getting your gasoline up there by tanker and then having it put out by bombs. That was an issue you raised.

Mr. GRAHAM. I imagine, from your question, you would unload your tankers at Skagway. You have to store it. You can't pump it from a ship, up, so you would have to store it there for a while. But I am perfectly willing to admit that you can do everything you say, sir.

Mr. HALLEY. Did you discuss these various alternatives before you recommended the pipe line and refinery?

Mr. GRAHAM. We did. We discussed the whole thing, but here is oil—

Mr. HALLEY (interposing). Did anybody in the War Department—

Mr. AMBERG (interposing). Let him finish.

You were saying something further. You said something about "here is oil."

Mr. GRAHAM. Here is oil back in a protected place.

Senator FERGUSON. It is only 150 miles across there, from Skagway to Whitehorse.

Mr. GRAHAM. Yes; that is all.

Senator FERGUSON. You wouldn't call that protected from bombing, would you? If they could reach Skagway, one hundred and fifty-some miles is not very far to come in to Whitehorse, is it?

Mr. GRAHAM. You have got to go up about ten or twelve thousand feet to go over the mountain range to get there.

Senator FERGUSON. But that is nothing for a bomber.

Mr. GRAHAM. No, sir.

Mr. HALLEY. I was about to ask, sir, whether anybody in the War Department had recommended to you the shipping and storage of fuel, rather than the building of a refinery and pipe line.

Mr. GRAHAM. No; not that I remember.

Mr. HALLEY. Did you have discussions with General Robbins?

Mr. GRAHAM. No. The only man there I came in contact with in this procedure was General Sturdevant.

Mr. AMBERG. Was he one of the other assistants to the Chief of Engineers?

Mr. GRAHAM. Yes.

Mr. HALLEY. Did you discuss with General Sturdevant the alternative proposal of shipping and storage as against the refinery?

Mr. GRAHAM. Not that I remember.

Mr. HALLEY. Did you discuss those alternatives?

Mr. GRAHAM. We discussed the highway, mostly, with him.

Mr. HALLEY. Did you discuss those two alternatives with anybody?

Mr. GRAHAM. Not that I remember. We may have discussed it with Colonel Leavel. We discussed many points about the whole procedure.

Mr. HALLEY. Who is he, sir?

Mr. GRAHAM. He is a colonel who represented oil, informally, of the Transportation Corps. He is now gone. I think he is out of the country, gone with the State Department as sort of a plenipotentiary representative on petroleum matters in the Middle East. We discussed it many times. He went over the whole thing afterward, after it had been authorized and approved.

(Senator Ferguson withdrew from the hearing at this point.)

Mr. HALLEY. There is one thing I think we might agree on, if possible. Could you arrange to have General Streett and General Carter here for a meeting?

Mr. AMBERG. I think so. Carter is in town, and I will see about where Streett is.

Mr. HALLEY. If possible, this afternoon at about 4 o'clock would be excellent.

Mr. AMBERG. I will do my best.

Mr. HALLEY. Did you, Dean, ever consider the amount of shipping which would be required in the building of the refinery and pipe lines?

Mr. GRAHAM. No.

Mr. HALLEY. Did you obtain any estimates of the amount of critical machinery, such as the components of pumping stations, which would be required for the pipe line and refinery?

Mr. GRAHAM. No; that was execution. I had nothing to do with it.

Mr. HALLEY. Did you feel at the time that you recommended the project that the quantities of material needed and the availability of those materials were matters which entered into the question of whether or not the project should be undertaken?

Mr. GRAHAM. When the project was first discussed and talked about, we received offers of aid from W. P. B. in expediting. That is all I know. They called up and asked, and I said, "I don't think we need it."

Mr. HALLEY. Who made those offers to you?

Mr. GRAHAM. Mr. Locke, representative of Mr. Nelson.

Mr. HALLEY. Mr. Edward Locke?

Mr. GRAHAM. Yes. He called me up once or twice about it.

Mr. HALLEY. What offer did he make?

Mr. GRAHAM. Pipe, and so forth—did we need any help on things of that kind?

Mr. HALLEY. With specific reference to this Canol project?

Mr. GRAHAM. Yes. That is all I was identified with.

Mr. HALLEY. At what time were these phone calls? Before your recommendation?

Mr. GRAHAM. It was somewhere along in April.

Mr. HALLEY. Of 1942. What knowledge did the War Production Board or Mr. Locke have of the project?

Mr. GRAHAM. Pure gossip.

Mr. HALLEY. Just gossip?

Mr. GRAHAM. Yes. They heard it. That is where they got in trouble. We didn't go to Mr. Ickes.

Mr. HALLEY. Why didn't you go to Mr. Ickes?

Mr. GRAHAM. I don't know. I didn't even know that the Department of the Interior extended into Canada. It was all in Canada at that time.

Mr. AMBERG. He had no power in the matter whatever, as I understand it.

Mr. HALLEY. Didn't the entire question tie into the availability of two things—one being petroleum supplies and the other being equipment?

Mr. GRAHAM. As far as equipment is concerned, I recommended, as you see there in the memorandum, that they search through the list and find cracking plants, and so forth; refining facilities, in other

words, that were obsolete from the point of size but were still in good condition.

Mr. HALLEY. Did you recommend that further consideration should be given to the abandonment of the project if the material were difficult to get?

Mr. GRAHAM. No; we knew the material wouldn't be. There are thousands and thousands of feet of 4-inch pipe—relay pipe—lying idle in this country—in Texas, everywhere—2-inch, 3-inch, 4-inch pipe are nothing but gathering-line size. That is not called a pipe line in these days; it is gathering line.

Mr. HALLEY. Did you make any survey of it?

Mr. GRAHAM. Of what?

Mr. HALLEY. The availability of such pipe.

Mr. GRAHAM. No. Heck, I knew it, and I knew they could find a 3,000-barrel refinery—find one that was obsolete on account of size. I know they could find it. I couldn't tell them where. They went out and found 14 of them.

Mr. HALLEY. Did you make any attempt to find out what more vital machinery, such as valves and pumps and things like that, were available?

Mr. GRAHAM. They would all be available if the plant was standing up, had been in operation, abandoned for lack of size.

Mr. HALLEY. Did you make any attempt to ascertain whether or not such a refinery would be more useful in other places?

Mr. GRAHAM. It wouldn't be in this country. It wouldn't be economic to operate. That was the reason they would be standing idle—obsolete on account of size.

Back in '18—20 years ago—the largest cracking plant in this country was about 500 barrels capacity. Now, I suppose they have gotten them up to 5,000 barrels capacity. The 500 barrels is just as good as it ever was, except for renewal of some tubes, probably. The whole thing is there—standing around over the country; nobody wants to tear them down because that means a write-off.

Mr. HALLEY. Is it your impression that no new equipment—or no substantial amount of new equipment—has been used on that refinery at Whitehorse?

Mr. GRAHAM. I don't know. I haven't had a thing to do with the execution of it. I wrote that one memorandum and quit. I was ending the job that had been given me 4 months before.

Mr. HALLEY. What was your original idea of what you were recommending? Was that something which would be a source of supply for motor and aviation transport along the route of the Alcan Highway?

Mr. GRAHAM. Yes; that is all.

Mr. HALLEY. Was it to be a source of supply for large-scale aerial operations against an enemy?

Mr. GRAHAM. To the extent of 3,000, its production; yes.

Mr. HALLEY. You couldn't get much for large-scale operations, could you, out of that refinery?

Mr. GRAHAM. No. But you would get some help on it. It is simply in addition to what you already had.

Mr. HALLEY. You would get a little help, in other words?

Mr. GRAHAM. Yes.

Mr. HALLEY. And the reason why you located the refinery at Whitehorse—

Mr. GRAHAM (interposing). Was because it was in the middle.

Mr. HALLEY. And you were thinking of supplying the air route along the highway, rather than supplying fighting operations, which would be farther west.

Mr. GRAHAM. I was taking care of the highway only from my point of view.

Mr. HALLEY. I see. Now, why did you locate the refinery at Whitehorse?

Mr. GRAHAM. Because it was near the middle from Edmonton through to Fairbanks.

Mr. HALLEY. Did you consider the possibility or the difficulties of laying a pipe line to Whitehorse, as contrasted to the difficulties of laying a pipe line to Fairbanks?

Mr. GRAHAM. As a matter of fact, at that time there wasn't sufficient information to tell you which was the worst or which was the best, to go to Fairbanks or Whitehorse. That is the reason I said in the memorandum, "To survey and to build the most feasible route." If you wanted to swing it to Fairbanks, no one would have objected after you got the information.

Mr. HALLEY. You specifically recommended Whitehorse.

Mr. GRAHAM. Yes, because it was in the middle. If you could get it there without undue effort, put it there; if not, put it somewhere else.

Mr. HALLEY. You didn't recommend deciding at a later time?

Mr. GRAHAM. No, I didn't.

Mr. HALLEY. You categorically stated Whitehorse?

Mr. GRAHAM. I did.

Mr. HALLEY. The only expert opinion you had, or advice, on the topography of the ground, was from Stefansson; is that right?

Mr. GRAHAM. Stefansson—the topography of the ground until you got to the McKenzie Range. From there on, over there, we only had aerial topography, contour maps.

Mr. HALLEY. On the basis of Stefansson's advice, didn't he suggest Fairbanks quite strongly?

Mr. GRAHAM. Yes. He wanted to put it at Fairbanks and use the river and pipe across.

Mr. HALLEY. Why did you overrule Stefansson?

Mr. GRAHAM. I didn't overrule him; I recommended something else. I wasn't overruling him. I wasn't executing a thing. That is what I couldn't get across to you. When I laid the memorandum on the table, I didn't give a continental whether it was torn up and thrown in the wastebasket. I was ending a job.

Mr. HALLEY. You mean you didn't care about it?

Mr. GRAHAM. Whichever they wanted to do—surely I cared.

Mr. HALLEY. You knew it was going to be an important proposition.

Mr. GRAHAM. Sure I cared. I had given the best I had in me for 4 months on a whole study, from that section of western Canada clear on up into Alaska.

I want to say this: Certainly I cared, and cared a great deal, but I had been working for 4 months on a proposition and I gave the best I had. Now, as to detail, whether after they have had months of study, they go ahead and put a refinery later on over at Whitehorse or at Fairbanks—from that point of view, no. If they had changed the whole

plan, I wouldn't have cared, except that I still believe you should develop the oil field and have all the fuel you can get in the center of your lines of communications, in Alaska, whether it is this war or any other war.

Mr. HALLEY. You knew that General Somervell, in effect, was the boss, and that if he said "yes" on the basis of your memorandum, your memorandum would, in effect, become the directive.

Mr. GRAHAM. Yes.

Mr. HALLEY. And in fact, General Somervell said "Yes."

Mr. GRAHAM. General Somervell in regard to recommendations—sometimes he takes action promptly, like this one; sometimes he takes 6 months. Whether I have given him verbally or in writing, a recommendation, in 2½ years, it is up to him what he does. I never give further advice nor ever ask a question as to what he is going to do about it. I didn't know this had been approved until 2 or 3 weeks afterward.

Mr. HALLEY. But you did understand that General Somervell would rely on your memorandum—

Mr. GRAHAM (interposing). I would say about 50 percent of the things that I recommend, about one-half, come through—some of them promptly; some, 6 months afterwards. So I can't say I was sure when I laid it down that he was going to carry it out.

Mr. HALLEY. But you were sure he was going to rely on the facts you stated, as being your conclusions, based on your effort and investigation?

Mr. GRAHAM. Up to that time.

Mr. HALLEY. And you understood that if he approved it, your memorandum would, in effect, become the directive.

Mr. GRAHAM. Yes. Then it goes to the Chief of Engineers.

Mr. HALLEY. And you thought that the whole matter was a very important one.

Mr. GRAHAM. Yes.

Mr. HALLEY. But you write your memorandum briefly, is that your point?

Mr. GRAHAM. Yes.

Mr. HALLEY. Would you think it was not sufficiently important to state that you had some doubts in your mind as to whether that refinery should be at Whitehorse or at Fairbanks, under those circumstances?

Mr. GRAHAM. As I put it down, I believed Whitehorse was the place, but I wouldn't have objected if somebody found out later, or had General Somervell taken that opinion.

Mr. HALLEY. I thought you just finished saying you had no real information on which was the place.

Mr. GRAHAM. I didn't. You had no information on April 30, 1942.

Mr. HALLEY. Why didn't you recommend then a survey to determine which should be the place?

Mr. GRAHAM. I said make a survey, and by the most feasible route.

Mr. HALLEY. To Whitehorse.

Mr. GRAHAM. I did say to Whitehorse.

Mr. HALLEY. Why did you do that on such an important matter?

Mr. GRAHAM. I said if I changed it, in retrospect, I would put two or three words in there: "or to Fairbanks."

Mr. HALLEY. You would do that?

Mr. GRAHAM. That is the only change I would make.

Mr. HALLEY. Senator Ferguson asked me if I would ask you this: He said, Did you ever make a study of how Russia supplies the airports she has on the other side of the Bering Strait; that is, through Siberia? We know when planes are ferried across, they go up along our string of airports and then across the strait and then Russia has a string of airports. Did you ever make a study of how those airports were supplied?

Mr. GRAHAM. You would have to ask the Air people about that.

Mr. HALLEY. You had no knowledge about that?

Mr. GRAHAM. No.

Mr. HALLEY. Did you seek any at the time you made your study?

Mr. GRAHAM. If I had sought, no one would have told me. All that sort of stuff was secret. I don't know whether they would tell you now or not. They might. I don't know. All I know is that they ferried planes this summer to Russia—and that is by hearsay—from north Alaska. The Russians take them and disappear with them, and that is all we know. Maybe General Streett or someone else in the Air Corps can tell you.

Mr. HALLEY. Did you give any consideration to the location of the refinery at Norman?

Mr. GRAHAM. I thought about it; yes. There has been some criticism about not putting it at Norman, and it might have been put there, but you had your choice. I picked Whitehorse, for my part; somebody else, who might be just as near right as I am, said Norman.

Mr. HALLEY. You mean you were just guessing, at best, anyhow?

Mr. GRAHAM. I was writing a memorandum on 3 months of information, the best you have. You would be astonished how few people knew much about that whole section at that time.

Mr. HALLEY. Couldn't you have proposed a study, a quick study, rather than definitely proposing a project?

Mr. GRAHAM. It would have taken as long to make the study. You have made the study; that is all you have done so far.

Mr. HALLEY. Someone could have gone up and taken a look.

Mr. GRAHAM. Gone where?

Mr. HALLEY. To Norman.

Mr. GRAHAM. You would have gone to Norman, but seen one little patch, one little skimming plant in operation, a few wells—that would have been all. You couldn't have gone 50 miles from Norman to save your neck.

Mr. HALLEY. You could in a plane with skis on it.

Mr. GRAHAM. You can in a plane. You could go over the mountains, but you couldn't land and make any explorations. It is all snow. They have been flying, as far as that is concerned. You could find men who had flown through to Fairbanks from Edmonton; yes; but you didn't know anybody that knew the country much between.

Mr. HALLEY. Then what you were getting at best was a pig in a poke.

Mr. GRAHAM. You are beginning really to learn—I read a book on it some years ago, about Alaska, named Uncle Sam's Attic. You are just beginning to learn what is in your attic, and it is going to be one of the most important sections of this United States eventually. You don't know much about your attic yet.

Mr. HALLEY. You could have gotten pretty definite information, though, on the subject of shipping gasoline up to Alaska and storing it.

Mr. GRAHAM. You could have done that. I admitted a while ago you could have done that; yes.

Mr. HALLEY. And you would have known exactly what you were doing and what you would have had at the end.

Mr. GRAHAM. You could have done that.

Mr. HALLEY. You would have been dealing with a certainty.

Mr. GRAHAM. But you would still have been on the shore and depending on two railroads.

Mr. HALLEY. You could have built the pipe line, as, indeed, you did, from Skagway to Whitehorse, so you wouldn't be depending on the railroad.

Mr. GRAHAM. As of April 1942, I wrote that thing down, the end of a job. I thought it was good then, and I still think so. In spite of your opinion, my opinion is just as good. You may be a lot more of an expert than I am; I don't know; but still, as I said, in retrospect, if I were doing it again, with what I know now, I would have doubled it.

Mr. HALLEY. You see. I have no opinion. I hope you haven't got the impression that I do. What I am trying to do is to find out the basis on which you had an opinion.

Mr. GRAHAM. I took all the information I could gather by running around Washington, and so forth, and put it together into a picture, and that was the picture.

Mr. HALLEY. Your method of getting that information was by talking to people; is that right?

Mr. GRAHAM. Listening to people.

Mr. HALLEY. You received no memorandum in writing?

Mr. GRAHAM. I got some reports sent over from Delano's office on various things. As far as the oil is concerned, the only definite information I got was in that one meeting, from those two technical men.

Mr. HALLEY. In the course of your study, you dictated no tentative memoranda or analysis?

Mr. GRAHAM. At the same time, I was sitting in on meetings, drew up the organization for the S. O. S., that was another thing, three times a week, which created the organization, streamlined the Army. I had other duties besides that.

Mr. HALLEY. This was a part-time job?

Mr. GRAHAM. This was a part-time job.

Mr. HALLEY. What proportion of your time were you able to give to it?

Mr. GRAHAM. I gave about one-fourth of my time.

Mr. HALLEY. In terms of hours a week, how many hours a week were you giving during the three-month period?

Mr. GRAHAM. I would say 12 or 14 hours a week.

Mr. HALLEY. Did you have any assistants aiding you on it?

Mr. GRAHAM. I haven't an assistant now and haven't even a secretary over at the War Department.

Mr. HALLEY. In other words, you were doing it all yourself.

Mr. GRAHAM. In conjunction with General Carter and General Streett and the others, and Delano, trying to work out a picture, and when I got it worked out, I wrote it down in memorandum form.

Mr. HALLEY. How many meetings did you have with Delano on the pipe line, refinery project?

Mr. GRAHAM. I don't know that we discussed it in more than two meetings.

Mr. HALLEY. How many meetings did you have with General Carter?

Mr. GRAHAM. I suppose—with General Carter, I would estimate about three or four.

Mr. HALLEY. And with General Streett?

Mr. GRAHAM. General Street was present at four meetings that I remember.

Mr. HALLEY. And General Pyron?

Mr. GRAHAM. I was in and out of his office at different times. You might put it down as 10 meetings. I don't know—just back and forth.

Mr. HALLEY. Just talk, though.

Mr. GRAHAM. In discussing some idea—and you come and you go and ask to sit down and talk it over.

Mr. HALLEY. Did you have any questions, Mr. Amberg?

Mr. AMBERG. Had you discussed the matter of the oil, Canol, and so forth, with General Somervell, from time to time, during that 2 or 3 months' period before your memorandum?

Mr. GRAHAM. As you know, Mr. Amberg, I see Somervell very often, generally late in the evening, and whenever I do, it will often come up that things I have been doing are discussed. I discussed the development of the highway, the railroad project, as that developed, which did not get approved—the development of the highway, the development of fuel, the development in the oil. I told him about a week before, as I remember it, before Dr. Link and his associates came down, that we had found them and they were coming to Washington, and I would write him a memorandum on the whole thing after I had talked to them and gotten some definite information from them. That was probably a week before they came.

So we had the talk with them; I remembered my promise to Somervell that I would give him my answer to the whole thing, and I wrote the memorandum. I suppose I talked about the whole project. It all lines up in my mind as one thing: the highway, the airway, and the fuel for it. If it is not put together right, if the highway is not located right and all that, that is a technical error, not a picture error. But as they went along, different steps on the thing, he was advised. Only two memoranda were written.

Mr. HALLEY. What was the other one?

Mr. GRAHAM. On the highway versus the railroad. That was a memorandum referring to the war plans.

Mr. AMBERG. With the development of more oil at Norman Wells, or in that vicinity, than 3,000 barrels a day, has that any use, in your opinion?

Mr. GRAHAM. Has it any use?

Mr. AMBERG. Yes.

Mr. GRAHAM. Yes. If I were setting up the policies of the Army or the Navy, of the men who contract—remember, I am not going to recommend this; I am just telling you what I think and what I do. There is such a thing as buying oil in the ground and letting it stay there. I would take all the developed oil in that area around Norman—I have heard anything from 13,000,000 barrels up to 100,000,000

barrels as possibilities—and I would buy it and keep it. I am talking about either the Army or the Navy, as a military reserve.

Mr. HALLEY. Would you do this: Would you go to the cost and great trouble of locating it and enter into a contract where at the end of the war it reverted, lock, stock, and barrel, to the Canadian Government and Canadian interests?

Mr. GRAHAM. I understand that is the way the contract was drawn.

Mr. HALLEY. Would you do it that way?

Mr. GRAHAM. No; I would not.

Mr. HALLEY. Any other questions, Mr. Amberg?

Mr. AMBERG. That is all.

Mr. GRAHAM. All I know is that Colonel Leavel made an examination. I have never read the contract. Colonel Leavel made an analysis of it and phoned me that the Government didn't have much to lose on the actual contract, and he didn't approve it, and doesn't approve it to this day.

I have said from the beginning, on buying oil in the ground, that I would amend the contract and buy oil in the ground and store it there for military purposes in the future.

You don't realize from central Alaska over to Leningrad, by going over the Pole, is just the same distance——

Mr. HALLEY (interposing). I presume you have been up that way?

Mr. GRAHAM. No, I have never been there, only by globe, you can measure it.

Mr. HALLEY. You have never been in Alaska?

Mr. GRAHAM. No; I have been offered the chance to go several times, but have never gone. I can't travel on account of my health.

Mr. AMBERG. What were you saying about the distance from central Alaska?

Mr. GRAHAM. The distance from central Alaska to Leningrad, Moscow, down into Poland, is about the same as from New York to London, over the Pole. Five years from now, if we do what we should do in the way of air development, that is the way we will be going.

Mr. HALLEY. You were thinking of the military, not civilian?

Mr. GRAHAM. No. That is what you might say off the record.

Mr. ROBINSON. I think you indicated your first contact with Imperial Oil was around April 27.

Mr. GRAHAM. As far as I was concerned; yes, sir.

Mr. ROBINSON. Had Imperial Oil, up to that time, submitted any records with respect to their field at Norman?

Mr. GRAHAM. Not that I know of.

Mr. ROBINSON. Had it been broached with any of the persons with whom you had contact, such as Stefansson?

Mr. GRAHAM. Not that I know. All I know is General Carter and I talked the matter over as to where we could get definite data. That was 2 weeks before the meeting of April 27. I did not know any of the Standard of New Jersey people; he did. So I suggested that he make the contact. He did, by telephone. It resulted in these two men being sent down.

Mr. ROBINSON. What I was interested in exploring was whether you had considered any other oil structures or had limited your considerations to the Norman structure.

Mr. GRAHAM. We got some reports about the structure down around Edmonton. There are two little fields down there, fairly heavy oil, if I remember right, that might be used. It almost verges on the asphalt; from what I have been told you can get a little gasoline out of it by hard cracking, but very little—3 or 4 percent. The rest of it is heavy fuel oil.

They told us we could burn it in locomotives. You couldn't use it for Diesel. You might get some Diesel oil out of it by low-temperature distillation. I don't know about that. But the only structure we mentioned was right there.

We had an interview in General Somervell's office with two men, whose names I do not know, from the Bureau of Mines, about the possibilities of exploring for oil to the south coast of Alaska, down there in that neck that comes down. They advised against it. I was present at that interview.

Mr. AMBERG. Was that before your memorandum?

Mr. GRAHAM. No; that was some time after the memorandum, some months after the memorandum. In fact, we were thinking of oil continuously during that time.

Mr. AMBERG. Had you considered the possibilities of oil from Alaska?

Mr. GRAHAM. We had been told—and have been told since—about the oil seeps up on the Arctic. The geologist, Dr. Link, who has traveled the whole thing, gave it as his opinion that you could find oil, the heavy stuff down by Edmonton, and you go on a line northwest, straight through, to the west of Great Slave Lake, come to the McKenzie and the Norman wells, pass through and follow the McKenzie out to the Arctic Ocean, that on that line you may find oil, or proper conditions for oil, at almost any place. That is one reason I put in my memorandum that they be encouraged—in one paragraph, I think you have it in there—that those in command up there, in the construction, encourage wildcatting, and any company that wanted to do wildcatting.

I think some of these days around the west of Great Slave Lake you will find possibilities for oil. They certainly extend on up into Canada. The McKenzie doesn't come into Alaska, as I remember it, the McKenzie River, and it almost follows the McKenzie River.

Mr. ROBINSON. On the additions of these other phases of the project which have been subsequently added, you were not consulted as to how that fitted in with your original concept of the problem, were you?

Mr. GRAHAM. No, I haven't touched it or discussed the thing. I was asked only two points. About 2 weeks after this memorandum I was asked to write a memorandum on the whole project for the Under Secretary of War. I don't know whether that was ever delivered to him or not. I wrote it. About the same time I was asked to come in. I was sent for by Secretary of War Stimson, and I went in to talk with him—not as long as I have this morning, but along the same lines. Other than that I haven't touched it in any way.

Mr. HALLEY. I certainly want to thank you for coming up, on behalf of the committee.

Mr. GRAHAM. I hope I have given you some information.

Mr. HALLEY. You have given us a great deal.

(The hearing adjourned at 11 o'clock.)

INVESTIGATION OF NATIONAL DEFENSE PROGRAM

SATURDAY, NOVEMBER 13, 1943

UNITED STATES SENATE,
SUBCOMMITTEE OF THE SPECIAL COMMITTEE
INVESTIGATING THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

EXECUTIVE SESSION ¹

The Subcommittee on Canol Project met at 10:35 a. m., Senator Homer Ferguson, of Michigan, presiding.

Present: Senator Homer Ferguson.

Present also: Rudolph Halley, executive assistant to the chief counsel, and H. G. Robinson, investigator.

Present also, representing the War Department: Julius H. Amberg, Special Assistant to the Under Secretary of War, and Brig. Gen. Frank E. Lowe, executive officer to the committee.

Senator FERGUSON. General, we have sworn all the witnesses, so I will swear you. Do you solemnly swear that in the matter now pending before the committee you will tell the truth, the whole truth, and nothing but the truth, so help you God?

General CARTER. I do.

TESTIMONY OF MAJ. GEN. ARTHUR H. CARTER, GENERAL STAFF CORPS, FISCAL DIRECTOR, ARMY SERVICE FORCES

Senator FERGUSON. Will you state your full name and your position?

General CARTER. Arthur H. Carter, major general, General Staff Corps, Fiscal Director, Army Service Forces.

Senator FERGUSON. How long have you been in your particular assignment?

General CARTER. I was assigned to my present position on the 7th of July, I think the date is, sir, of this year.

Senator FERGUSON. Let's go back. When did you start the last time in the Army? I understood you had been in civilian life.

General CARTER. I was commissioned in October of 1941.

Senator FERGUSON. Then did you have anything to do with the Canadian oil?

General CARTER. At that time I was budget officer of the War Department and Chief of the Fiscal Division of the Army Service Forces—the date I was appointed.

Senator FERGUSON. When did you first come in contact with the question of oil in Canada?

¹ Publication authorized by the chairman, January 15, 1944.

General CARTER. The first time I heard of the project was on March 31, 1942.

Senator FERGUSON. You are referring to a book now. Is that true?

General CARTER. Yes, sir.

Senator FERGUSON. So that the record will show, what is that book?

General CARTER. It is the diary I keep in my office.

Senator FERGUSON. Who called it to your attention at that time?

General CARTER. General Browne and Colonel Graham came to my office on this date.

Senator FERGUSON. Is Colonel Graham a civilian?

General CARTER. He is a civilian employee of the War Department.

Senator FERGUSON. He is the gentleman we understand to be Dean Graham?

General CARTER. That is right, sir. He came to my office on this date to discuss the highway, but during the discussion oil was mentioned.

Senator FERGUSON. What was the discussion about the highway?

General CARTER. At that time there was a question raised as to the selection of the highway, and there was also under consideration a railroad.

Senator FERGUSON. What was the purpose of the highway and the railroad?

General CARTER. The purpose of the highway was to——

Senator FERGUSON (interposing). I mean as far as they related it to you.

General CARTER. The purpose of the highway was to service the air line to Alaska.

Senator FERGUSON. That air line had been in how many years? How many years had the Canadian railroads put in an air base; do you know?

General CARTER. I don't know.

Senator FERGUSON. How did the pipe line come in at that time with the oil?

General CARTER. Merely a reference to the oil on route C was made.

Senator FERGUSON. Will you describe route C? Where did it go?

General CARTER. There are three routes, as I recall it. One route, A, went up the coast; route B was between the range of mountains; and route C was further east.

Senator FERGUSON. How far east?

General CARTER. It started around Edmonton, to the east.

Senator FERGUSON. And then went to what place?

General CARTER. It went generally in a northwesterly direction up to Alaska.

Senator FERGUSON. You say there was oil on that route?

General CARTER. It was known that Norman Wells had produced oil; yes, sir.

Senator FERGUSON. Would the route C go through Norman Wells?

General CARTER. No.

Senator FERGUSON. How far from Norman Wells?

General CARTER. I should say 150 miles, probably. I don't know definitely.

Senator FERGUSON. Where is the road now; do you know? On what route?

General CARTER. Route C.

Senator FERGUSON. Oh, it is on route C?

General CARTER. Yes, sir.

Mr. HALLEY. Where was route B to be? I don't quite understand.

General CARTER. In the trench between the two ranges of mountains.

Mr. HALLEY. Through what territory would it go? I believe there is some confusion in the geographical description here.

General CARTER. I am sorry we haven't the map here.

Mr. HALLEY. It seems to me that they are now on the middle route and not on the easterly route.

Mr. AMBERG. On the C. It is near the coast, also.

Senator FERGUSON. Would this map [indicating] help you some?

Mr. AMBERG. I have a map here that is a better one, I think. This isn't of the highway, but it is the one that is completed, as I understand it.

(There followed a discussion off the record, during which the map produced by Mr. Amberg was examined.)

(The map referred to was marked "Exhibit No. 1100," and is included in the appendix facing p. 9855.)

Senator FERGUSON. Now we can start back on the record. Route C is the present route?

General CARTER. That is right, sir.

Senator FERGUSON. Did they say that there was oil on that route?

General CARTER. No.

Senator FERGUSON. What did they say, if you can remember nearly what they said to you, the substance?

General CARTER. It was pointed out that Norman Wells had produced oil, was producing oil, and the location of Norman Wells was indicated on the map. I didn't understand at the time that it was right on the route.

Senator FERGUSON. I am just wondering why, when they were talking about a highway and a railroad, they were talking at the same time about oil.

General CARTER. It was mentioned during our discussion of route C and the proximity of the Norman Wells field to that section of the country.

Senator FERGUSON. At that time were we transporting planes to Russia?

General CARTER. We were transporting planes up that route; yes, sir. Whether they were going to Russia or not, I am not certain.

Senator FERGUSON. We were putting planes up over the route.

General CARTER. Yes, sir.

Senator FERGUSON. Then what happened in your connection with it?

General CARTER. In view of the fact that the routes were under consideration, we thought it would be well to explore again the selection of route C.

Senator FERGUSON. Was one of your duties selecting that route?

General CARTER. No, sir. I was merely acting as a staff officer of General Somervell's office and was asked to participate in the conferences. In order to get first-hand information on the routes, it was decided in a conference to call the best experts we could find on those various routes up to Alaska.

Senator FERGUSON. If you had built the road along A, it would have been of no value to the airports that were already in.

General CARTER. No, sir. That is right, sir.

Senator FERGUSON. If you had built it along B, it would have been of no value to the airports—

General CARTER (interposing). That were already constructed on route C. That is correct, sir.

Senator FERGUSON. Then how could this road be connected with the airports if you were considering even at that date putting it on A or B?

General CARTER. It was more in connection with the general project and the possibility of building a railroad that would supply that Alaskan area, and in connection with that the study of the three routes was made.

Senator FERGUSON. As I understand it, it wasn't in connection with the airports exactly. It had to do with supplying Alaska with equipment.

General CARTER. That is correct; but the air route was most important at that time.

Senator FERGUSON. Then why did they consider A and B? They would be of no aid to the air route.

General CARTER. Well, the merits of those two routes has been questioned—all three routes—so we were surveying the situation to make certain that the C route was the proper route.

Mr. AMBERG. I wonder if I could ask a question that would refresh your recollection. I believe the C route had been determined on and even partly started, but wasn't there a suggestion from Mr. Delano, or somebody, that we put a railroad up the trench or B route as an alternative to this or an addition to it, for that matter?

General CARTER. That is correct.

Senator FERGUSON. Was it to be an addition? Were we to have both a railroad and a motor road?

General CARTER. No. I understood at the time that the railroad was proposed as a substitute for a supply line to Alaska.

Senator FERGUSON. Well, was this a supply line to Alaska or was it a supply line to the airports?

General CARTER. It was primarily a supply line for the airports, or if operation—

Senator FERGUSON (interposing). But how could it possibly have been on A and B?

General CARTER. I didn't think it could be on A and B, but in order to clear my mind on the subject, we consulted people who had flown all the routes, and it was definitely established in my mind that there was no question but that route C was the proper route to establish the line on.

Senator FERGUSON. What was the date, again?

General CARTER. The first date was on March 31.

Senator FERGUSON. Of '42?

General CARTER. Yes, sir.

Senator FERGUSON. Where were the Japs then in relation to Alaska?

General CARTER. They were very close or in Alaska at that time.

Senator FERGUSON. Were they in Attu?

General CARTER. I don't know, sir.

Senator FERGUSON. Had our shipping been interfered with, did you know, in the inland passage?

General CARTER. Shipping was scarce all over.

Senator FERGUSON. Oh, scarce; but had it been in any way interfered with?

General CARTER. Not that I know of, but there were very, very meager shipping facilities, anyway.

Senator FERGUSON. Did you know that we were putting in large docks at Excursion Inlet?

General CARTER. No, sir.

Senator FERGUSON. Was the Navy consulted in relation to the supply of Alaska?

General CARTER. I didn't consult them, but I assume they were consulted.

Senator FERGUSON. Then what did you do later? How were you connected with this route?

General CARTER. On April 18, in order to get reliable information on the routes, I arranged through the Pan American Airways to get a man to Washington who knew the merits of the various air routes to Alaska, to come and consult with us about it.

Senator FERGUSON. Then do I understand that you were interested in developing air routes to Alaska?

General CARTER. That was the first consideration.

Senator FERGUSON. In April?

General CARTER. Yes, sir.

Senator FERGUSON. What did you do? To continue, what happened?

General CARTER. Mr. Lloyd, assistant to Mr. Juan Trippe, had Mr. Harold Bixby sent to Washington from out in the Northwest to attend a conference. Mr. Bixby arrived in Washington, and we had a meeting on April 21. At that meeting were present General Browne, General Streett, of the General Staff—

Senator FERGUSON. What Brown was that? Floyd?

General CARTER. Frederick W. Browne. He was my assistant.

General Robins, of the Engineers; Colonel Russell, of the Air Corps; Colonel Graham (Dean Graham); Colonel Breen, of the Air Corps; Mr. Bixby, of the Pan American Airways; and General Sturtevant of the Corps of Engineers.

Senator FERGUSON. Now will you tell us what took place?

General CARTER. We discussed the merits of the three routes. These gentlemen who had flown them all gave their opinions as to the merits of the various routes, and it was unanimously decided, I think, there—it was certainly the consensus of opinion—that the C route was the only feasible one.

Senator FERGUSON. As far as you were concerned, C was the only one that had airports on it?

General CARTER. That is right.

Senator FERGUSON. Do you know what airports were on it at that time?

General CARTER. I don't know how many, but I knew there were airports there on the route.

Senator FERGUSON. Do you know when we built the airport at Anitka?

General CARTER. No, sir.

Senator FERGUSON. All right. Then what happened? Was there anything about oil at that time?

General CARTER. No.

Senator FERGUSON. Oil wasn't mentioned?

General CARTER. I don't think so.

Senator FERGUSON. In other words, you anticipated putting the air route in without oil.

General CARTER. We were deciding which was the best route then.

Senator FERGUSON. Yes.

General CARTER. That was our first consideration.

Senator FERGUSON. Whether it had oil in it or not.

General CARTER. That is right.

Senator FERGUSON. You were looking after the best route to Alaska.

General CARTER. That is right, sir; and we tried to get the best advice we could find on it, and I think we did.

Senator FERGUSON. Was there any question about where you wanted to be in Alaska?

General CARTER. No, sir.

Senator FERGUSON. Did you consider the water route up to Juneau, where you had a large airport?

General CARTER. We were considering the route that was feasible for flying planes to Alaska the year round, if possible.

Senator FERGUSON. What kind of planes?

General CARTER. All kinds that were required in that area.

Senator FERGUSON. Was it for war that you were going to fly these planes?

General CARTER. Quite so, sir.

Senator FERGUSON. It had nothing to do with peace?

General CARTER. Oh, nothing whatever.

Senator FERGUSON. You were looking after an airway for war planes, Army planes.

General CARTER. A very serious need appeared at that time for such a project.

Senator FERGUSON. Was it on the defense of Alaska?

General CARTER. Yes, sir.

Senator FERGUSON. Bombers and fighters or what?

General CARTER. Any type of plane the Air Corps might use for the defense of Alaska or for offense from Alaska.

Senator FERGUSON. Then I understand that on April 21 you decided that the C route was the air route that you wanted to take.

General CARTER. Yes, sir; and on April 22, the next morning, Colonel Graham called my office—Dean Graham called my office.

Senator FERGUSON. We will know, when you are speaking if you refer to the colonel or the dean, that it is the same man.

General CARTER. He advised me that he had reported the results of our conference to General Somervell.

Senator FERGUSON. Then where do we go next?

General CARTER. On April 25 I called Mr. Holman of the Standard Oil Co. of New Jersey, in New York, to request him to arrange for two or more experts who were the best qualified to speak from actual knowledge on the field at Norman Wells—

Senator FERGUSON (interposing). You don't give us any connecting link between your deciding on the airways and again getting interested in oil. Oil was not taken up on the 21st or the 22d?

General CARTER. It was referred to, of course, in these prior conferences.

Senator FERGUSON. Yes, some time prior; but how did you get a connection that you would call someone in New Jersey?

General CARTER. Having decided or at least the meeting having arrived at the opinion that the C route was the best route, the next question that arose was whether or not we could get oil locally. That brought into consideration, of course, the Norman Wells.

Senator FERGUSON. Whom did you consider that with prior to calling these people in New Jersey?

General CARTER. No one other than those that I have indicated in my previous statement.

Senator FERGUSON. What happened then?

General CARTER. May I correct that? As soon as we had settled on the C route, it was desirable to get in touch with experts who knew about oil. So I called Mr. Walter Teagle, whom I know, and asked him if he knew about this field and, if not, who would know from personal experience and knowledge about the Norman Wells. He said, "I know about it generally, but Mr. Holman could arrange to have the right men available, if you wish them." Following that, I called Mr. Holman and arranged to have experts from the Imperial Oil come to Washington for a conference.

Senator FERGUSON. Whom did they send?

General CARTER. They came to a conference on Wednesday, April 29, and at that conference—

Senator FERGUSON (interposing). You are now referring to what?

General CARTER. A memorandum of names of the conferees present.

Brig. Gen. St. Clair Streett, of the Operations Division of the War Department General Staff; Brig. Gen. Walter B. Pyron, Resources Division, Services of Supply; Dean Graham, special assistant to the commanding general, Services of Supply; Mr. O. C. Wheeler, of the Imperial Oil Co.; Mr. F. B. Bimel, of the Imperial Oil Co.; Mr. Morgan Walker, of the Standard Oil of New Jersey; Col Carl A. Russell, Operations Division of the War Department General Staff; Lt. Col. James K. Tully, Operations Division of the War Department General Staff; Mr. James C. Rettie, chairman, Alaska Regional Office of the National Resources Planning Board; and Mr. Ray W. Smith, of the Board of Economic Warfare.

Senator FERGUSON. What happened at that meeting? Have you any report of that meeting?

General CARTER. I have no report of that meeting; no, sir.

Senator FERGUSON. Nothing in writing?

General CARTER. No, sir. Dean Graham was handling the matter as far as reports were concerned.

Senator FERGUSON. And what happened, to your knowledge, at that meeting?

General CARTER. We discussed the situation at Norman fields, got indication from these experts that there were actually some producing wells there, that the Imperial Oil Co. had each summer recently operated the wells, that they had drilled a few wells which were producers, and that the possibility of raising the production up to 3,000 barrels a day seemed very favorable.

Senator FERGUSON. Did they tell you they had drilled some dry wells?

General CARTER. Yes, sir.

Senator FERGUSON. Did they tell you they were operating only about 2 months a year?

General CARTER. Yes, sir.

Senator FERGUSON. And that if they operated year round, the pressure might go down and they would have very much less oil?

General CARTER. Yes, sir. All that was brought out.

Senator FERGUSON. What was finally agreed to?

General CARTER. The difficulties that they mentioned under war conditions could be overcome. I think everybody agreed to that.

Senator FERGUSON. What were the difficulties?

General CARTER. The lack of pressure in the winter season—

Senator FERGUSON (interposing). How could you overcome those?

General CARTER. The plans that were discussed were to get as much oil out during the open season as we possibly could, and run the operation to capacity during the operating period and, if necessary, put whatever facilities in that might be necessary to keep the production up during the winter season, if that were possible.

Mr. AMBERG. May I ask a question here?

Senator FERGUSON. Yes.

Mr. AMBERG. Was there anything said about further development of the field at or in the neighborhood of Norman Wells?

General CARTER. Yes. They indicated quite definitely that in the vicinity of Norman Wells, within a radius of probably 50 miles, particularly to the south, there was an indication of further oil reserves.

Mr. HALLEY. Did they bring geological data and maps with them?

General CARTER. They had maps, and they had data.

Mr. HALLEY. With them at the conference?

General CARTER. I am not certain that they brought them, but they were there.

Senator FERGUSON. General, had you had experience in oil?

General CARTER. None whatever, sir.

Senator FERGUSON. Then you were sitting there more or less as a lay person, as a general in the Army, but not having expert knowledge of the situation.

General CARTER. I was trying to get the best advice from the people who knew the most about it.

Senator FERGUSON. Who started the idea that you really needed oil on this airway? You were then operating over it.

General CARTER. I think it was generally conceded that we needed a great quantity of oil and gasoline for operations that might arise in Alaska, and I know that General Streett was very enthusiastic about it, he being an Air Corps officer. He impressed me very much with the need as he expressed it.

Senator FERGUSON. Do you know what the need was at that time?

General CARTER. I don't know what the total quantity was, but I know—

Senator FERGUSON (interposing). No; what the need was rather than the supply.

General CARTER. The prospective needs were very large.

Senator FERGUSON. How large?

General CARTER. I have no idea, sir.

Senator FERGUSON. Then this wasn't to take care of the entire needs?

General CARTER. I presume it was to take care, first, of the air route,

the planes, and then what use they made of it other than that, of course, would be as a supplement to the air route. Of course, they had to supply these fields up and down the road. They would have to.

Senator FERGUSON. Aren't most of these fields just emergency fields?

General CARTER. Emergency fields, but I think the Air Corps would say that they want good emergency fields and stations, where they could land if they had to and where supplies would be available.

Senator FERGUSON. How long did you anticipate it would be before you could furnish gas to the flying airplanes on this route from this project?

General CARTER. I made no estimate as to how long it would take. I assumed that, in a wartime operation of that type, it would be pushed to the utmost.

Senator FERGUSON. But we had at that particular time other grave problems, didn't we, to solve?

General CARTER. Yes, indeed; many.

Senator FERGUSON. Many of them?

General CARTER. Many; yes, sir.

Senator FERGUSON. You didn't intend to get all your gas supply out of this pipe line, this oil well.

General CARTER. We would get all we could, and if that wasn't enough we would have to get some other.

Senator FERGUSON. I am just wondering whether or not you considered taking it up by tanker, the way you would have to take part of it anyway.

General CARTER. I don't recall the tanker operation discussions, but I imagine we did consider the possibility of getting gasoline to Alaska by any means.

Senator FERGUSON. How were you going to get the equipment up on the Mackenzie River to Norman Wells?

General CARTER. That was discussed, and the experts who were there agreed that if we got tonnage on the river early enough we could transport the equipment.

Senator FERGUSON. Was there anything said about a refinery?

General CARTER. Yes.

Senator FERGUSON. What was said about that?

General CARTER. The possibility of putting in a refinery if the oil field developed was discussed, and I assumed that they would put one up there.

Senator FERGUSON. How were you going to get the refinery up there?

General CARTER. The refinery was located at Whitehorse.

Senator FERGUSON. It was located?

General CARTER. It had been located at Whitehorse.

Senator FERGUSON. Yes; but at that time there wasn't any refinery there.

General CARTER. I assume they would locate the refinery at a place where they could get the equipment there in the shortest possible time. It would naturally be over on the coast.

Senator FERGUSON. Yes. You would have to take it in by water.

General CARTER. Yes, sir.

Senator FERGUSON. So the water route was open. There wasn't any question about getting it up there by water?

General CARTER. You mean the refinery itself?

Senator FERGUSON. Yes.

General CARTER. I assume they could.

Senator FERGUSON. If you could get the refinery up by water, why couldn't you get the oil up by water?

General CARTER. I believe that at that time there was considerable shortage of shipping.

Senator FERGUSON. Was there a shortage of oil?

General CARTER. Well, there was a great drain on our oil resources.

Senator FERGUSON. As I understand it, we are still furnishing more than the English over in the Near East. Isn't that true?

General CARTER. I don't know, sir.

Senator FERGUSON. You have heard that.

General CARTER. I have heard that; yes, sir.

Senator FERGUSON. Go ahead.

Mr. AMBERG. May I ask a question? Was this question of the draining of the United States' oil resources considered at that conference?

General CARTER. Yes; we discussed that, and I know that the subject was discussed generally by people who were dealing with the oil problems of the War Department.

Mr. HALLEY. Did anybody feel at that conference that you could possibly add to the general oil resources of the United States by devoting crews to exploration which could be done only 3 or 4 months of the year, whereas the same crews could spend 12 months a year exploring the United States? Was that discussed seriously?

General CARTER. We were endeavoring to find a source of supply on our route, and it was imperative that we have those supplies.

Mr. HALLEY. Were you worrying about the general oil resources of the United States?

General CARTER. No.

Mr. HALLEY. That is definite?

General CARTER. That is definite.

Mr. HALLEY. Thank you.

Senator FERGUSON. There were oil wells at Edmonton, were there not?

General CARTER. I understand there are wells there.

Senator FERGUSON. Did you go into the question as to whether or not gasoline could be made from that oil?

General CARTER. We discussed it and, as I remember it, the experts advised that that field was not as favorable as Norman Wells.

Senator FERGUSON. Not as favorable, but it could have been done.

General CARTER. I don't believe that we went into that any further than to get the opinion that it was not a favorable development to develop.

Senator FERGUSON. Was the number of men that it would take to do this job considered?

General CARTER. That was a matter that would be decided on the operating level.

Senator FERGUSON. What do you mean by that? I am not familiar with that.

General CARTER. Our consideration of this whole project was from the staff level, and the operation of it was to be carried out by the Engineer Corps.

Senator FERGUSON. You mean that the General Staff was deciding as to whether or not you should have oil there?

General CARTER. Yes, sir.

Senator FERGUSON. That was one of the provinces or duties of the General Staff?

General CARTER. That is right, sir.

Senator FERGUSON. The cost and the number of men to do it were someone else's duty?

General CARTER. That is right, sir.

Senator FERGUSON. Was the feasibility of doing it someone else's duty?

General CARTER. Having made the decision at the staff level and passing the problem on to the operating agencies, the operating agencies would deal with all the problems involved in carrying out the directive. If they couldn't do it, they would be duty bound to report back and get further instruction.

Senator FERGUSON. Were they furnishing planes over this route lend-lease to Russia?

General CARTER. I think so, Senator. I am not positive.

Senator FERGUSON. Was that considered? Was that one of the things that was to be done?

General CARTER. Undoubtedly, it must have been.

Senator FERGUSON. Then did you go into the question as to how Russia was going to get oil along her line from, say, Fairbanks to Moscow?

General CARTER. No, sir.

Senator FERGUSON. Did you figure out how they were going to get the planes from Fairbanks over?

General CARTER. No, sir. We were considering the servicing of our own operations, plus lend-lease, if that were part of it.

Senator FERGUSON. What I am trying to get is, was lend-lease one of the questions?

General CARTER. I assume it was.

Senator FERGUSON. No. You assume, but was it taken up?

General CARTER. Undoubtedly, the Air Corps plans included lend-lease.

Senator FERGUSON. But was it expressed at the meeting?

General CARTER. I don't recall definitely, but I think it was.

Senator FERGUSON. Have you had a meeting since we have been able to get the Japs out of Attu and Kiska?

General CARTER. I have not attended any meeting on this subject since the last one I indicated.

Senator FERGUSON. You haven't been consulted to see whether or not it was feasible now to go ahead or whether it should be stopped?

General CARTER. No, sir.

Senator FERGUSON. We do understand that the primary thing in having this pipe line or oil up there was not transportation of planes to Russia?

General CARTER. I would not want to give that impression, because——

Senator FERGUSON (interposing). Well, I am trying to find out whether it was or was not.

General CARTER. The war plans were not fully known to me, and I was relying entirely upon the General Staff to give consideration to those points. General Street——

Senator FERGUSON (interposing). How could you decide, if you didn't know the war plans, as to whether or not you should go ahead at great expense in money and manpower to get oil and gas along this route?

General CARTER. The officers who attended the conference from the General Staff were well informed, undoubtedly, and I relied upon their information and their judgment.

Mr. HALLEY. Specifically, which officers do you have in mind, General?

General CARTER. General Streett, particularly, and these other officers of the General Staff operations.

Mr. HALLEY. Could you mention their names?

General CARTER. Gen. St. Clair Streett, Operations Division; Col. Carl A. Russell, Operations Division, War Department General Staff; and Lieutenant Col. Tully, Operations Division.

Senator FERGUSON. Whose decision was it?

Mr. AMBERG. I think Russell is now a general. Isn't Russell now a general?

General CARTER. I think he is.

Mr. AMBERG. And Lieutenant Colonel Tully is now a full colonel.

General CARTER. Of course, General Somervell was undoubtedly informed of the requirements.

Senator FERGUSON. I notice that you left out anyone connected with the United States oil production, like Ickes' office. They were not present at this meeting?

General CARTER. No.

Senator FERGUSON. How do you account for that?

General CARTER. It was a War Department project and required a certain amount of secrecy, I assume.

Senator FERGUSON. How do you account for secrecy on a thing like that? What secrecy could you have?

General CARTER. I don't think the War Department General Staff would want to expose their plans any further than they would have to.

Mr. HALLEY. Is that the real reason why the petroleum people weren't invited?

General CARTER. I don't know. I have no reason.

Mr. HALLEY. You are just now thinking up what might have been the reason.

Senator FERGUSON. Let's just examine your answer. You called down two men whom you are not acquainted with from New Jersey, civilians, and talked the entire matter over with those two civilians.

Mr. HALLEY. And the Board of Economic Warfare.

Senator FERGUSON. Yet you didn't—

General CARTER (interposing). I would like to correct that, if I may.

Senator FERGUSON. You want to correct it?

General CARTER. Yes; I want to correct it, Senator. Strike that answer, will you, please?

Mr. HALLEY. We can't strike it.

Senator FERGUSON. We can't strike it out, but you may correct it.

General CARTER. I don't know why Mr. Ickes was not in.

Senator FERGUSON. Was anything said about it?

General CARTER. Not that I recall.

Senator FERGUSON. Didn't you think of it at that time as being very important?

General CARTER. I don't think I did.

Senator FERGUSON. Have they ever been called in, as far as you know?

General CARTER. Not that I know of.

Senator FERGUSON. Where do we go from this point where they had decided to get some oil up there? Will you give me the next step?

General CARTER. That is the last I had to do with it, Senator.

Senator FERGUSON. That is the last you had to do with it?

General CARTER. Yes, sir.

Senator FERGUSON. Whose judgment was it that we would put pipe lines and a refinery in Canada? Who is responsible for it? Who would be the man who is responsible for that decision? There were quite a number of officers present, and I assume that they were for conference rather than for decision.

General CARTER. I don't know who would take the final responsibility. I assume, General Somervell.

Senator FERGUSON. Was your decision necessary to the project?

General CARTER. I don't think so, sir.

Senator FERGUSON. What do you figure now that you contributed to the decision?

General CARTER. Well, I don't want to be boastful.

Senator FERGUSON. I want you to be perfectly frank about what you did.

General CARTER. I think I was successful in getting together some experts who knew what they were talking about, and we had the benefit of their counsel and advice with respect to these meetings.

Senator FERGUSON. I assume that you knew at that time that Mr. Ickes would have some experts, and they were Government men?

General CARTER. I assume he would; yes, sir.

Senator FERGUSON. I am just trying to find out now, if I can, why he was not included in this.

General CARTER. I wasn't responsible for bringing anyone into the conference other than those people that I have mentioned.

Senator FERGUSON. Did you ever get a report from those people in writing?

General CARTER. I got a report from Mr. Le Sueur, of the Imperial Oil Co.

Senator FERGUSON. Have you got that report with you?

General CARTER. Yes.

Senator FERGUSON. Have you seen that report, Rudy?

Mr. HALLEY. No.

Senator FERGUSON. Would you let us see it?

General CARTER. It was a letter. It was not intended as a report [handing papers to Senator Ferguson].

Mr. AMBERG. What is the date of it?

Senator FERGUSON. May 2, '42.

Mr. HALLEY. The report to which you refer is a letter from the Imperial Oil, Ltd., dated May 2, 1942; is that right?

General CARTER. That is right.

Mr. HALLEY. It is signed by R. V. Le Sueur; is that right?

General CARTER. That is right, sir.

(The letter referred to was marked "Exhibit No. 1101," and is included in the appendix on p. 9855.)

Mr. HALLEY. Mr. Robinson, I understand you asked to see all the pertinent data directed to the War Department files on the Canol project; is that right?

Mr. ROBINSON. That is right, I think.

Mr. HALLEY. Were you shown this letter?

Mr. AMBERG. This is General Carter's personal file, isn't it?

General CARTER. That is right.

Mr. HALLEY. In any event, you were not shown this particular letter; is that right?

Mr. ROBINSON. That is correct.

Mr. AMBERG. You didn't ask for it?

Mr. ROBINSON. No, sir.

Mr. HALLEY. You asked for everything pertinent?

Mr. ROBINSON. I think the letter addressed to the War Department will show so.

Senator FERGUSON. You didn't know this letter of May 2 existed?

Mr. ROBINSON. This is the first I have seen the letter.

Senator FERGUSON. So when they ask you whether you asked for this letter you couldn't ask for this particular letter because you didn't know it existed?

Mr. ROBINSON. That is correct.

Mr. AMBERG. As far as you know, did anybody know that the letter existed?

General CARTER. I don't know that they did. I don't think so.

Senator FERGUSON. What was done with this letter, General?

General CARTER. Placed in my file.

Senator FERGUSON. Were its contents made known to the War Department?

General CARTER. What is the date of it, Senator?

Senator FERGUSON. May 2.

General CARTER. May 2?

Senator FERGUSON. Yes.

General CARTER. I probably showed it to Colonel Graham.

Mr. HALLEY. Probably. Do you know whether you did?

General CARTER. I don't know.

Senator FERGUSON. Why wouldn't you show it?

General CARTER. Because it contains nothing that we hadn't heard before in our discussions.

Senator FERGUSON. Well, I will read the last paragraph:

In concluding, let me repeat that we see very great difficulties both as to the feasibility and as to the expedition in the plans proposed.

General CARTER. We saw that. That was not new.

Senator FERGUSON. This wasn't a private matter of yours.

General CARTER. Oh, no, sir.

Senator FERGUSON. Is this your private file?

General CARTER. Yes, sir.

Senator FERGUSON. Is this all of your private file?

General CARTER. I think it is. That is supposed to be filed under subject matter.

Senator FERGUSON. Now, I find on November 9 [reading from Exhibit No. 1102]:

Major Sheid saw General Carter this date with reference to the papers in this file. This was in connection with a letter from the Truman committee. General Carter dictated the paragraph shown on the attached paper as a substitute for one of the paragraphs in the Truman committee letter. Detailed information with respect to Norman field was sought and obtained from representatives of the Imperial Oil Co., Ltd., whom Mr. Teagle indicated were the best-posted individuals on that field. These gentlemen were requested to and did confer with the War Department April 29, 1942.

Is that what you dictated?

General CARTER. Yes, sir.

Mr. AMBERG. Major Sheid is one of the men who was helping me, who has been working in connection with this recent investigation of the committee for the War Department, trying to get the facts and to get all the files and stuff we can for you.

Mr. HALLEY. Let's see, General. You have told us that you have been responsible for bringing these two Standard Oil people down for conference; is that right?

General CARTER. I assumed to do that.

Mr. HALLEY. And that they were the people who represent the Imperial Oil; is that right?

General CARTER. I understand so; yes, sir.

Mr. HALLEY. And they were the people who then went home and caused this letter to be written, or so it would seem.

General CARTER. I don't know who caused it to be written. I assume that it would be.

Mr. HALLEY. It looks that way, doesn't it?

General CARTER. Yes.

Mr. HALLEY. Then you said that that letter told you nothing new because it represented the position that those two gentlemen took at the conference.

General CARTER. It pointed out matters that had been under consideration at the conference. There was nothing new in the letter.

Mr. HALLEY. In other words, the two men had told you just that at the conference; is that right?

General CARTER. Practically; yes.

Mr. HALLEY. What was the purpose of calling the two men down for the conference, to get the view of the Imperial Oil people who knew about the matter? Is that right?

General CARTER. Yes, sir.

Mr. HALLEY. You wanted expert advice.

General CARTER. Yes.

Mr. HALLEY. Did you feel that expert advice was necessary?

General CARTER. I, personally, felt it was essential.

Mr. HALLEY. The expert advice turned out to be against the project.

General CARTER. Partly, yes; in that they indicated it would be very difficult to carry out this operation.

Mr. HALLEY. It seems to me that in your earlier testimony you indicated to the committee that, on the basis of this expert advice, it was deemed advisable to go ahead, from which the inference was clearly made that the expert advice was favorable. Wouldn't you draw that inference from your earlier testimony?

General CARTER. In respect to the availability of oil, I think the conference was favorable; yes.

Mr. HALLEY. The letter isn't favorable, is it?

General CARTER. As to oil?

Mr. HALLEY. Yes.

General CARTER. Oh, I think so.

Senator FERGUSON. You really think so?

General CARTER. I think so.

Mr. HALLEY. Have you recently reread this letter?

General CARTER. Not very recently, no; but I do know that the information that came out in the conference was favorable to the oil.

Mr. HALLEY. Then, if the letter is unfavorable as to the oil prospects, would you change your testimony that it confirmed what happened at the conference?

General CARTER. No; I don't think so. I would like to read the letter.

Mr. HALLEY. I think you should.

General CARTER. Because I relied wholly upon the conference for my statement.

Mr. HALLEY. Did you reread the letter before coming up here to testify?

General CARTER. I haven't read the letter. I just pulled it out of my file this morning.

Mr. AMBERG. When did you first learn you were going to testify today?

General CARTER. I learned of it in New York yesterday afternoon late.

Mr. HALLEY. But you had been advised before that that the Truman committee was looking into this Carol project.

General CARTER. Oh, yes; I knew that; yes, sir.

Senator FERGUSON. Who is J. H. G.?

Mr. AMBERG. That is Graham.

Senator FERGUSON. Graham; is that right?

General CARTER. Yes, sir.

Senator FERGUSON. On May 5, 1942 (that is 2 days after the letter that we have been referring to), Graham wrote you, General Carter: "Returning letter of May 2, Imperial Oil, Ltd., on Norman Wells field." So he did have it.

General CARTER. Apparently so.

Senator FERGUSON. Paragraph 1 of Exhibit No. 1102:

As stated by General Pyron, this field is not at all regular, and the present production only indicates probable further production within the vicinity and not full assurance.

When did they start the highway, General?

General CARTER. I don't know the date, sir.

Senator FERGUSON. Have you any idea as to whether or not it was started at this time, in May?

General CARTER. I believe it was started early in the spring of 1942.

Mr. HALLEY. Did you speak to any representative of the Bureau of the Budget who investigated this matter?

General CARTER. I don't recall.

Mr. HALLEY. Did any of your subordinates ask you for information of the Bureau of the Budget with regard to it?

General CARTER. No, sir.

Mr. HALLEY. Did you at any time advise the Bureau of the Budget of the existence of the letter of May 2?

General CARTER. No.

Mr. HALLEY. You did not?

General CARTER. No.

Senator FERGUSON. Where did you first get the idea of 3,000 barrels?

General CARTER. I think these experts indicated that that was the potential capacity.

Senator FERGUSON. What was the capacity of the refinery at Norman Wells?

General CARTER. Very small. It was a skimming plant, I understand.

Senator FERGUSON. Could they make 100-octane?

General CARTER. They made gasoline there and flew the planes out on it.

Senator FERGUSON. Who is H. F. Sheets?

General CARTER. H. F. what?

Senator FERGUSON. S-h-e-e-t-s.

General CARTER. He is a Socony Vacuum Oil Co. official, I think.

Senator FERGUSON. Did you confer with him on this oil?

General CARTER. No. That has nothing to do with this subject. That shouldn't be in that file.

Senator FERGUSON. How do you account for its being in this file?

General CARTER. May I look at it, Senator? I probably can refresh my recollection.

Senator FERGUSON. Yes. It is a letter from Sheets to you [handing paper to General Carter].

General CARTER. Oh. This gentleman was sent to me by Colonel Brownell for some purpose. I don't recall what. I think perhaps he wanted to become associated with the War Department. I think that is what that is. He wanted a commission, I think.

Senator FERGUSON. I notice on April 1 you wrote this letter [reading from Exhibit No. 1102]:

We should include in the 1943 estimates provisions for the proposed Alaskan road, and in that connection I suggest that the terminology be broad enough to permit the construction of a motor road or a railroad and that, if possible, it be so inclusive as to enable us to provide the necessities for an air line of communication. Perhaps the language could be made broad enough by stating that the money is required for land and air communications between the terminal points. We should also give consideration to the question of maintenance of this line of communication.

That is signed by you. Did you ever ask to put this in your budget?

General CARTER. The following year when the estimates were submitted, the Engineer Corps included in their budget all that they considered was required for the project. That had been passed to them to carry out.

Senator FERGUSON. I understand that that is the way the Army gets its money, by making it in language such as you have here so that you can build either a railroad or a pipe line or anything else.

Mr. AMBERG. Nothing was said about a pipe line, Senator.

Senator FERGUSON. It says [reading further]:

We should also give consideration to the question of maintenance of this line of communication.

General CARTER. That was very important to my mind, because any highway or any railroad after being built would require considerable money for maintenance.

Senator FERGUSON. Did you have in mind in the maintenance of the line of communication that the pipe line was part of that?

General CARTER. Yes, indeed; anything that—

Senator FERGUSON (interposing). So you had in mind putting in that general language a pipe line, a refinery, an airfield, a railroad, and a highway.

General CARTER. It would all be detailed in our estimates, Senator. It is all put out in that.

Senator FERGUSON. I notice you put it this way [reading]:

I suggest that the terminology be broad enough to permit the construction of a motor road or a railroad and that, if possible, it be so inclusive as to enable us to provide the necessities for an air line of communication. Perhaps the language could be made broad enough by stating that the money is required for land and air communications between the terminal points.

General CARTER. But when the estimate is prepared, Senator, that would be detailed in every respect.

Senator FERGUSON. Was it ever detailed to the Senate or the House?

General CARTER. I don't recall, but if it is in the estimate for the following year, it was gone over very carefully.

Senator FERGUSON. If it wasn't in the estimate, do you know why it was left out?

General CARTER. I don't know that it was left out or put in. I was merely trying to cover a situation that had arisen in connection with the projects that were under consideration at the time.

Mr. AMBERG. May I ask a question?

Senator FERGUSON. Yes.

Mr. AMBERG. Do I understand that there is certain language proposed for an appropriation bill?

General CARTER. Yes.

Mr. AMBERG. And then the Appropriations Committees are given the details that come under that language.

General CARTER. Oh, yes, sir.

Senator FERGUSON. Did you ever include the pipe line and the refinery and all in any detail to the Congress?

General CARTER. I think the engineers have included it in their estimates. They make the estimates.

Senator FERGUSON. Mr. Robinson, I wish you would look into that in the other committee.

I think, Mr. Halley, the entire file should go into evidence.

Mr. HALLEY. Would you mark it in evidence?

Senator FERGUSON. Yes.

Mr. AMBERG. A photostat or what?

Senator FERGUSON. You had better photostat it for us. I think you had better make it exhibit X. I don't know where we are in exhibit numbers.

(The file referred to was marked "Exhibit No. 1102," and is included in the appendix on p. 9857.)

Mr. HALLEY. Who is C. F. M.?

Mr. AMBERG. You don't care for that, about a fellow who was applying for a commission, and got into this file because he happens to be an oil fellow. If you want it, I don't care.

Mr. HALLEY. I think we should get the file intact.

Mr. AMBERG. All right.

Mr. HALLEY. It won't make any difference.

Senator FERGUSON. With the explanation that he wanted to make.

Mr. HALLEY. Who is C. F. M., General?

General CARTER. My secretary.

Mr. HALLEY. I see that this memorandum of November 9 refers to Major Sheid's coming to see you in connection with a letter from the Truman committee. What letter was that; do you know?

General CARTER. It is a photostat report of the Truman committee that you had.

Mr. AMBERG. The one you sent me.

Mr. HALLEY. You mean requesting files?

Mr. AMBERG. The one that you sent me, your proposed report on the question of clearance, and so forth. While I was at it, I was also looking into its accuracy, and Major Sheid was going around to ask anybody to say what he wished where he was mentioned, or something of that sort. Apparently it went to General Carter, who was mentioned, I believe, in the document that you sent me.

Have you any objection, Senator, to my trying to prepare for the case—

Senator FERGUSON. No, no.

Mr. AMBERG. And going around to talk to our men who have something to do with it?

Senator FERGUSON. Not at all.

General CARTER. There is a very important correction that I wish to make.

Mr. AMBERG. It is very necessary, if I am to be of any assistance, that I have a right to talk to anybody in the War Department having to do with the matter. Then if you want for your record everything that is said to me, we will have to have it for you, I suppose.

Mr. HALLEY. The record should be perfectly clear, but if you have drawn any inference from my question, Mr. Amberg, of course that is your duty and you would be neglecting your duty if you didn't do it. However, I think the facts in this particular case are developing in such a way that you must understand the committee's desire to get all of the details.

Mr. AMBERG. I can never guarantee you that. There may be a thousand officers in the War Department who have received letters from somebody about this. All I can get for you are the regular files of the Corps of Engineers and the different departments that had to deal with it. After it is all done, there may be 500 other letters that I never heard of.

Senator FERGUSON. Do you believe now, General, that this demands secrecy?

General CARTER. No, sir.

Senator FERGUSON. Then you, personally, haven't advised secrecy?

General CARTER. No, sir.

Senator FERGUSON. Do you know of anything else that can help us in this investigation to get the facts?

General CARTER. I can think of nothing, Senator.

Senator FERGUSON. How many copies of this letter would exist? Would anybody else have any other letter?

General CARTER. I don't think so, not of those [indicating].

Senator FERGUSON. Did Dean Graham come to you, see you, recently on this matter?

General CARTER. I see him quite often.

Senator FERGUSON. Did he talk about the Canadian project?

General CARTER. He did; yes, sir.

Senator FERGUSON. When did you see him?

General CARTER. I saw him this morning.

Senator FERGUSON. Did you talk over this matter?

General CARTER. Yes, sir.

Senator FERGUSON. Was this letter in any way used to refresh your memory?

General CARTER. No.

Senator FERGUSON. Do you know of anybody else now, besides Graham, who saw this letter?

General CARTER. No.

Senator FERGUSON. Do you have any questions?

Mr. HALLEY. Yes.

Senator FERGUSON. All right, go ahead.

Mr. HALLEY. I have been having a good deal of difficulty, General, in understanding exactly what your function was in connection with this. You are not an oil man; is that right?

General CARTER. Oh, no.

Mr. HALLEY. And you are not an engineer?

General CARTER. No.

Mr. HALLEY. You were, however, on the General Staff at the time that this came up?

General CARTER. I was budget officer of the War Department when this came up and Director of the Fiscal Division.

Mr. HALLEY. In what connection did Dean Graham approach you, simply for advice from an officer?

General CARTER. Yes, sir. I presume he was sent to me by General Somervell or came of his own volition.

Mr. HALLEY. To get general advice?

General CARTER. That is right.

Mr. HALLEY. Not particularly following any straight line of approach?

General CARTER. No, sir.

Mr. HALLEY. I think, to get the record clear, it might be a good idea if you did state your qualifications, so that we could see the type of experience which you could bring to bear on the problem. I understood you were a Regular Army man.

General CARTER. I would be very glad to give you my record, sir.

I graduated from West Point in 1905 and went into the Field Artillery. I served in the Field Artillery from 1905 to 1914, and I resigned from the Regular Army in 1914. I came back into the Army as a Reserve officer—

Senator FERGUSON (interposing). What was your rank when you resigned?

General CARTER. I resigned as a first lieutenant. I was in the Philippines twice. I resigned in 1914 and went into civil life. In 1917, when the war started, I came back in the Army as a major of Ordnance.

Mr. HALLEY. What had you been doing in civil life?

General CARTER. I was a farmer. I came back in the Army as a major of ordnance, in charge of the Property Accounting Division of the Ordnance Department. I was promoted to a lieutenant colonel and made the Chief of the Administrative Division of the Ordnance Department. I was promoted to a colonel of ordnance. Then I transferred back to the Field Artillery when the war became rather black, and I took a commission in the Field Artillery as a lieutenant colonel. I was assigned to organize and command the Central Field Artillery Officers' Training School at Camp Zachary Taylor. I organized and commanded that school until the end of the war. I served until March of 1919, discharged as a colonel of Field Artillery.

I went into business as an accountant in 1919 and was a certified public accountant of the State of New York, of Connecticut, and of a number of other States. I had been in the public accounting business since 1919 when, in March of 1941, I was asked to come to Washington to review the War Department's accounting and auditing procedures, particularly at the request of Judge Patterson.

Mr. AMBERG. With what concern were you connected?

General CARTER. I was an employee and partner, and for the last 10 years have been the senior partner, of the firm of Haskins & Sells, of New York.

In October of 1941 I was appointed a brigadier general in the Army and assigned to the Administrative Division of the Under Secretary's office. When the War Department was reorganized, I was assigned as Budget officer and Director of the Fiscal Division of the Services of Supply.

Mr. AMBERG. That was in the first part of March 1942?

General CARTER. March 9, 1942. I served in that capacity until sometime in July of this year, when I was appointed Chief of the Fiscal Division of the Army Service Forces, and the Budget Branch of my office was then separated and placed in the General Staff.

Mr. AMBERG. The Chief of Finance was brought under you, though.

General CARTER. Since that time the fiscal activities of the War Department have been consolidated in my office as fiscal director. I have charge of all fiscal operations other than budget, but I have the budget operations in the Army Service Forces.

Mr. HALLEY. Would you say, then, General, that with respect to this particular Canol problem, the ability that you were able to bring to it was administrative and business acumen? Would that be right?

General CARTER. I think that is correct, sir, and I think that I perhaps added a military concept to what we were considering.

Mr. HALLEY. But not an engineering or petroleum concept?

General CARTER. No.

Mr. HALLEY. Are you an expert on logistics?

General CARTER. No, except that I know something about how matters of that kind are handled in civil life in dealings with railroads and audits of railroads. I have some concept of the problems.

Mr. HALLEY. Again, that is your business and administrative experience?

General CARTER. Yes.

Mr. HALLEY. As the head of Haskins & Sells, did you do business for a number of large concerns?

General CARTER. Yes.

Mr. HALLEY. I think the record should show that Haskins & Sells is one of the leading accounting firms in New York City.

Senator FERGUSON. They have agencies around in the other cities also.

General CARTER. Yes, sir; and abroad.

Mr. HALLEY. General, you didn't inject yourself into this Canol discussion; it was brought to you. Is that right?

General CARTER. It was brought to me entirely apart from my participation in it, at the request of Colonel Graham.

Mr. HALLEY. And you were asked for advice.

General CARTER. Well, I was asked to sit in on the conferences, which carried with it, I thought—

Mr. HALLEY (interposing). Were you asked to join in a determination of whether or not the project should be recommended or were you asked simply to help Colonel Graham on procedural matters; in other words, to indicate sources of information to him?

General CARTER. I was helping Colonel Graham, who apparently came to me for help.

Mr. AMBERG. May I ask a question, whether, since you have been in the War Department this last tour of duty since '41, you are often consulted by General Somervell or Judge Patterson on matters not directly of a fiscal or budget nature?

General CARTER. A great deal by not only Judge Patterson and General Somervell, but by many of the supply services, technical services, and on many questions that have to do with business.

Mr. HALLEY. Were you ever specifically asked by Graham whether or not you approved this project?

General CARTER. I don't recall the specific question.

Mr. HALLEY. Did you ever indicate to him that you believed that this project was one that should be carried through?

General CARTER. Up to the point that I left it, I felt that it was a worthy project, and it should be done.

Mr. HALLEY. You left it immediately after a conference in the forenoon of April 29; is that right?

General CARTER. That is right.

Mr. HALLEY. At that conference was there a discussion of whether or not the project should be put into effect?

General CARTER. I don't recall the specific discussion as to whether a decision was made.

Mr. HALLEY. Before the conference your mind was open on the matter, I presume?

General CARTER. Before these experts came down and gave us information that was reliable, I thought my mind was still open.

Mr. HALLEY. Then something happened at the conference to make you believe that the project should immediately be carried through; is that right?

General CARTER. I felt and still feel that the project at that point was worthy of putting into effect.

Mr. HALLEY. As a result of the conference?

General CARTER. Yes. Of course, the operating agencies on the other level had responsibility after it left that point.

Mr. HALLEY. That is understood.

Senator FERGUSON. Have you ever been consulted as to whether or not it should have been stopped at any time as a war measure?

General CARTER. No; I never have.

Mr. HALLEY. At the conference the new information was the information that you received from the representatives of the Imperial Oil Co.; is that right?

General CARTER. Yes.

Mr. HALLEY. They told you about the prospects of finding oil, and they told you about conditions that you would have to meet up there.

General CARTER. Yes.

Mr. HALLEY. As a result of what they told you, were you of the opinion that the project should immediately be ordered to be carried through by the engineers?

General CARTER. I felt so, yes; and before letting the matter go entirely without saying anything, I called General Streett on the telephone after that conference to have him confirm to me again how important this was to the Air Corps, and he did.

Mr. HALLEY. Before we get to that point, did you convey your thoughts on the matter to Graham? Did you tell Graham that you thought the project should be ordered to be carried into operation?

General CARTER. I don't recall saying it in just that way.

Mr. HALLEY. If I may give you the background, he went right back to his office, it appears, and dictated a memorandum to General Somervell recommending the project without qualification, and that memorandum was then approved that same day, apparently, by General Somervell.

General CARTER. I would have concurred in the memorandum at that time.

Mr. HALLEY. Did you concur in it at that time?

General CARTER. I had an opportunity to say anything I wished about it as soon as I got the copy, and I didn't.

Mr. HALLEY. Did you get a copy of the memorandum?

General CARTER. Yes.

Mr. HALLEY. On April 29?

General CARTER. I don't remember the date, but it is in the record.¹

Mr. HALLEY. Do you remember having seen it?

General CARTER. I did at the time, I am sure.

Mr. HALLEY. And did you approve of it?

General CARTER. I would have approved it if I had been asked to.

Mr. HALLEY. In your own mind at that time did you think it a proper recommendation?

General CARTER. Yes, sir.

Mr. AMBERG. Was that the time you called Streett?

General CARTER. I called General Streett to confirm what the position of the General Staff Corps was, before I would say that I gave it my whole approval.

Mr. HALLEY. That is the next thing I should like to know about. What was the function of General Streett in this conference? Was he there to state the requirements of the Air Force?

General CARTER. He was a representative of the Operations Division of the General Staff Corps and knew better than anyone in the conference what the requirements were.

Mr. AMBERG. He was also an Air Corps officer.

¹ See Exhibit No. 1095, appendix, p. 9842.

General CARTER. He was an Air Corps officer and had flown this country up there very extensively.

Mr. HALLEY. Dean Graham testified here yesterday that at the time of this memorandum of April 29 he had absolutely no idea of the requirements, that it was impossible to get any estimate of the requirements. Is that your recollection?

General CARTER. I think that is correct.

Mr. HALLEY. What did General Streett add then to the state of knowledge on this matter?

General CARTER. He confirmed to my mind the need for a project of this kind.

Mr. HALLEY. How could you know the need until you knew the requirements?

General CARTER. I left that to his judgment, because I assumed that he would not indicate the need without knowing what the requirements were.

Senator FERGUSON. May I again interrupt? Were the requirements for the transportation of lend-lease to Russia, airplanes, or was it——

General CARTER (interposing). I don't know.

Senator FERGUSON. For our defense of Alaska by airplanes?

General CARTER. It was certainly for our operations in Alaska, and I assume it was for lend-lease operations as well.

Senator FERGUSON. To date, we haven't used the pipe lines at all, have we?

General CARTER. I don't know. I assume not.

Senator FERGUSON. We haven't used the refinery. Do you know whether or not we have been delayed in any way?

General CARTER. I don't know.

Senator FERGUSON. In either our defense or transportation of lend-lease.

General CARTER. I don't know, Senator.

Senator FERGUSON. I am trying to get at why we should continue, General.

General CARTER. The situation, as I got it, at that time was a most critical one in that area.

Senator FERGUSON. Give us what it was, why it was critical and what the facts were.

General CARTER. Critical in that there was a threat against Alaska by the Japs.

Senator FERGUSON. When did the threat stop?

General CARTER. It stopped when we got them out of the Aleutian Islands, in my opinion.

Senator FERGUSON. You don't consider that the position of Attu and Kiska was really a threat to Alaska.

General CARTER. I think it was a threat to the west coast.

Senator FERGUSON. To the west coast?

General CARTER. Yes, sir.

Mr. AMBERG. This was after Pearl Harbor?

General CARTER. Yes.

Mr. AMBERG. Do you know anything about the control of the Pacific at that time, in the spring of '42?

General CARTER. I have no detailed knowledge, but I wasn't impressed with our position in the Pacific after Pearl Harbor. I thought it was very critical.

Senator FERGUSON. Did you have any detailed information on it?

General CARTER. No. That was not in my——

Senator FERGUSON (interposing). Not in your line?

General CARTER. Line, except as a matter of general interest, and having been in the military, I have some idea of those problems. I would like to have been in them myself.

Senator FERGUSON. All right, Mr. Halley.

Mr. HALLEY. You say that the purpose of this Canol proposition, as you understood it, was twofold, both to help the lend-lease movement up through Fairbanks and into Siberia and for the defense of Alaska?

General CARTER. Military operations in that area; yes, sir.

Mr. HALLEY. Did you understand at the time that you approved this memo in your own mind that the result of this Canol project was to be the supplying of aviation gasoline for large-scale military operations?

General CARTER. Well, yes; I felt that it was to supply gasoline for military operations and to supply fuel for transport.

Mr. HALLEY. Let's take them one at a time. Of course, we had this Alcan Highway being pushed through there.

General CARTER. Yes.

Mr. HALLEY. You believed that this project would be useful, I presume, in supplying fuel for the planes being flown up through this chain of landing fields toward Siberia; is that right?

General CARTER. That is right; and maintaining the road.

Mr. HALLEY. And also for fuel for trucks on the road.

General CARTER. Yes, sir.

Mr. HALLEY. You knew, of course, that such fighting as would occur would be more likely to take place out along the seacoast.

General CARTER. I had no knowledge of where the oil was.

Mr. HALLEY. I am talking about where the Japs were.

General CARTER. Oh, well, of course, the difficulty with the Japs would arise first, I assume, on the coast.

Mr. HALLEY. Let me put it this way: Did you ever take the trouble or have the thought to consult the Alaskan Defense Command and see whether they thought anything about materials for their use up through Fairbanks?

General CARTER. I didn't consult them because they were represented in these conferences, the War Plans Division.

Mr. HALLEY. Do you know Brigadier General Whittaker?

General CARTER. I don't recall him.

Mr. HALLEY. He is in charge of logistics and supply for the Alaskan Defense Command, under Major General Bruckner. Have you ever heard his opinion of the usefulness of materials brought up the Alcan and flown up along those airfields to Fairbanks for the purpose of defending Alaska?

General CARTER. I never have heard it.

Mr. HALLEY. Have you ever heard the view of the Alaskan Defense

Command that their work was along the seacoast and along the Aleutians rather than in central Alaska?

General CARTER. I never have.

Mr. HALLEY. Would that have been relevant to a study of the problems involved in approving the Canol project?

General CARTER. I think I considered the project entirely from the point of view that it was for the purpose of maintaining that air route, primarily.

Mr. HALLEY. You mean for the purpose of simply fueling transport or for the purpose also of fueling fighting operations by planes?

General CARTER. If necessary, fighting operations; anything.

Mr. HALLEY. Do you know anything about refinery operations?

General CARTER. I wouldn't say I do; no.

Mr. HALLEY. Do you know how much gasoline can be gotten out of a 3,000-barrels-a-day refinery?

General CARTER. No; but I could get reliable information on it.

Mr. HALLEY. Did you ever get such reliable information?

General CARTER. No.

Mr. HALLEY. How could you possibly be in a position to know the value of such a refinery for these operations unless you knew how much gasoline it could produce?

General CARTER. I had nothing to do with the selection of the refinery. I didn't look into that at all.

Mr. HALLEY. It is in this memorandum of April 29 which was approved by General Somervell, of which you had a copy.¹

General CARTER. That was the responsibility of the operating agency.

Mr. HALLEY. There is something I wish you would explain to the civilian mind, which cannot grasp the military point. You have made the point repeatedly today and Colonel Graham made the point repeatedly yesterday that your task was to say, "There shall be this project," and that all of the difficulties were matters which the operating agency had to deal with. Is that right?

General CARTER. That is correct.

Mr. HALLEY. I haven't misstated it, have I?

General CARTER. That is correct.

Mr. HALLEY. How can you possibly determine on the desirability of a project without knowing what the difficulties are going to be?

General CARTER. I assume that before you direct a project, you would give consideration to the possibilities and to the difficulties and the advantages and the disadvantages.

Senator FERGUSON. You approved it, as I understand it, General, for erection?

General CARTER. I beg your pardon?

Senator FERGUSON. You approved it, as far as you were concerned, that it should be erected.

General CARTER. I agreed that we should have a refinery up there and use this oil, once we got it out of the ground.

Senator FERGUSON. Yes; but you didn't know whether or not you could even transport it through a line up there.

General CARTER. Oh, I was pretty well informed, as far as these experts could give us information at the time, that it was a feasible project.

¹ See Exhibit No. 1095, appendix, p. 9842.

Senator FERGUSON. Do you know what the temperatures would be to transport this through?

General CARTER. That was discussed.

Senator FERGUSON. How much? What were the temperatures?

General CARTER. I have forgotten the figures.

Senator FERGUSON. Are you sure, are you quite sure, that they told you that they could produce 3,000 barrels?

General CARTER. I am sure that that figure was pretty well established.

Senator FERGUSON. Then didn't the letter of the 2d use great caution in the amount of oil that could be obtained up there and warn you?¹

General CARTER. I think we were warned, of course.

Mr. AMBERG. May the general see the letter? He says he hasn't seen it in a year or so, whatever it is.

Senator FERGUSON. Do you want to ask him any questions about it [to Mr. Amberg]?

Mr. HALLEY. Could we finish building up this other point and then get into the question of this letter?

Senator FERGUSON. Go ahead.

Mr. HALLEY. Is that all right, Mr. Amberg?

Mr. AMBERG. Certainly. Whatever you wish.

Mr. HALLEY. Here is a point that I still feel requires clarification. This memorandum of April 29 definitely recommends the project, does it not?

General CARTER. Yes.

Mr. HALLEY. And you take the position that the difficulties of putting through the project were something for the operating forces to determine.

General CARTER. Yes.

Mr. HALLEY. Did you go into the relative advantages of alternate methods of providing the fuel?

General CARTER. There was some discussion, I think, of the possibility of getting the fuel by barge up the west coast, perhaps by tank car up to other points; but in my opinion the information on that point didn't outweigh the advantages of having this oil available up in that field.

Mr. HALLEY. Let's see what facts you had to form that opinion on. Did you ascertain the availability of barges or tankers for such an important purpose?

General CARTER. I didn't; no. The engineers were represented.

Mr. HALLEY. Who represented the engineers?

General CARTER. At those conferences?

Mr. HALLEY. Yes.

General CARTER. General Robins, General Sturdevant.

Mr. HALLEY. Were they at the conference of April 29?

General CARTER. I think so. I have the names of them there.

Mr. HALLEY. Here they are.

General CARTER. May I have my file a moment? I will see.

Mr. HALLEY. I am sorry. It is your file [handing papers to General Carter].

General CARTER. They were not at this conference, apparently, but the previous ones.

¹ Exhibit No. 1101, appendix, p. 9855.

Mr. HALLEY. You had conferred with both General Robins and General Sturdevant?

General CARTER. General Robins was at one conference, and General Sturdevant, I know, was there.

Mr. HALLEY. Would you check your book and make sure of that?

General CARTER (referring to a book). On April 21 General Robins and General Sturdevant were there.

Mr. AMBERG. Was that discussion on the oil project—

General CARTER (interposing). Yes.

Mr. AMBERG. Or the highway, or both?

General CARTER. Both.

Mr. HALLEY. Can you think of any reason why General Robins was not at the April 29 conference?

General CARTER. I can't, except that perhaps he was out of town.

Mr. HALLEY. Do you not know, General, that General Robins vigorously opposed this project and took the position that the necessary gasoline and petroleum products could be moved to the necessary points by barges at much smaller cost and effort?

General CARTER. I didn't know that until I read it in the report.

Mr. HALLEY. Did he not state that to you?

General CARTER. Not that I recall; ever.

Mr. HALLEY. What was the purpose of having a conference with General Robins of the engineers if you didn't get his view on that very important point?

General CARTER. Well, I don't know.

Senator FERGUSON. When did you see his report?

General CARTER. It was the report of your committee, of the Truman committee, that I saw yesterday—2 days ago.

Mr. AMBERG. The preliminary draft that was sent over to me.

Mr. HALLEY. To keep the record clear, that is not a preliminary draft of a report. It is a memorandum of facts which we would like to have cleared.

Mr. AMBERG. While we were doing that, we tried to see whether there was anything we wished to add on any of the points.

Mr. HALLEY. What did you talk about with General Robins?

General CARTER. At this conference?

Mr. HALLEY. Yes.

General CARTER. We were discussing the routes and the oil, the Norman wells.

Mr. HALLEY. Do you mean to say that in the course of this discussion he didn't state that he thought barges would be a much better way to handle the thing?

General CARTER. He may have, but I don't recall it.

Senator FERGUSON. Did you consult the Navy?

General CARTER. I didn't; no, sir.

Senator FERGUSON. We have a conference here to decide a grave question, and the Navy isn't called in.

General CARTER. I don't know whether they were consulted or not, Senator.

Senator FERGUSON. I mean you weren't asked to get the Navy in.

General CARTER. No.

Mr. HALLEY. Did you attempt to find out how much critical material would be needed to put the project through and at what cost to other vital projects this would be done?

General CARTER. It was considered a prime project. I assumed that whatever they needed to put it through would be available because of its urgency.

Mr. HALLEY. You decided that this took precedence over anything else, so that no matter what the cost in men and materials, it should be done?

General CARTER. I wouldn't say over anything else. It could get the proper priority rating, I assumed.

Mr. HALLEY. Did you take the position that it should be done, no matter what the cost in men and materials?

General CARTER. It seemed to me a very worthy project at the time under the circumstances.

Mr. HALLEY. That is not quite the answer. It might have been a worthy project, provided it didn't cost too much in men and vital materials. Did you take the position that no matter what it cost in men and materials, it should be done?

General CARTER. As a war project, I think it is impossible to measure the cost of anything in war.

Mr. HALLEY. In men and materials?

General CARTER. You measure them by conserving them as far as possible, but when you are building a project of this type, if it is found desirable to have it and it is a necessity for the war effort, you do it in spite of anything.

Mr. HALLEY. So you made no effort to find out what the obstacles would be; is that right?

General CARTER. Oh, yes; we considered them. They did not seem to be insurmountable.

Mr. HALLEY. I thought those were the things you said you left to the operating people.

General CARTER. Before the operators got the directive, the Staff gave consideration to the project.

Mr. HALLEY. Who is the staff that gave consideration to the project?

General CARTER. General Somervell's office.

Mr. HALLEY. And who else?

General CARTER. These officers that were present. I don't know who else was consulted, beyond General Somervell. I am assuming that the proper persons were consulted.

Mr. HALLEY. Do you mean that they gave consideration other than the consideration at this particular conference?

General CARTER. No. I think the recommendations were made, and then the action was taken.

Mr. HALLEY. General Somervell apparently could not have considered it for more than one afternoon; is that right?

General CARTER. Oh, I think General Somervell had considered it for a considerable time.

Mr. HALLEY. He couldn't have had the vital information before the morning of April 29, because you didn't get the Imperial Oil people down there before that morning; is that right?

General CARTER. That is correct.

Mr. HALLEY. He approved the recommendations on the afternoon of April 29, is that not so?

Mr. AMBERG. Let's see that memorandum.

Mr. HALLEY. Let's get the answer.

Senator FERGUSON. When was your conference on the day of the 29th with the oil people?

General CARTER. It was on Wednesday—may I have my file again? Here it is.

Senator FERGUSON. What does your book say on it?

General CARTER. The 29th is the date.

Senator FERGUSON. Yes; but when is it entered in your book? What else had you done on that date?

General CARTER. I talked with General Somervell.

Senator FERGUSON. When? Before this conference?

General CARTER. After. This conference was a 9 o'clock in the morning. At 11 I went to General Somervell's office. At 3 I saw Mr. Martin Quinn.

Senator FERGUSON. No. What time was this conference? At 9?

General CARTER. Nine o'clock; yes, sir.

Senator FERGUSON. After that, you went to General Somervell's office?

General CARTER. I went to his office at 11, probably sometime after that.

Senator FERGUSON. What took place then? Was it on this project?

General CARTER. I don't recall. I haven't an entry here on that. Probably not. It appears to be a call from General Somervell on some subject.

Senator FERGUSON. Have you any information as to why you have not been consulted since the time that you approved it, if you were one of the approving officers, as to whether or not it should be discontinued?

General CARTER. I don't know why, sir.

Senator FERGUSON. Can you account for that?

General CARTER. I don't see any point in consulting me.

Senator FERGUSON. Your judgment was essential in making the project possible.

General CARTER. I made no decision. I merely participated in the discussions. I made no decision.

Mr. HALLEY. What were you able to add to that discussion, General?

General CARTER. I think the only thing I added was to get in some people to give us information that was reliable, and I listened to it and passed judgment on it.

Mr. HALLEY. Did you pass judgment on it?

General CARTER. In my own mind I did; yes.

Mr. HALLEY. Did you state that judgment?

General CARTER. I think I indicated that, as a result of these conferences, we certainly had justification in saying that this project was possible.

Mr. HALLEY. Let's get quite definitely the basis of your judgment. You didn't know how much gasoline would be provided as a result of the project, did you?

General CARTER. We didn't know that the project—

Mr. HALLEY (interposing). I am talking about you personally. Did you know that?

General CARTER. How much it would produce, you say?

Mr. HALLEY. Yes; in gasoline.

General CARTER. No; not at that time.

Mr. HALLEY. Did you know how much gasoline a 3,000-barrel-a-day refinery would produce?

General CARTER. No.

Mr. HALLEY. Did you know the requirements in gasoline in that area?

General CARTER. I knew the requirements were known to those who were present in the conference, and I realized that they would pass judgment in respect to the quantity of gasoline required, and I acted with that knowledge.

Mr. HALLEY. But you got no information from them on the subject; is that right?

General CARTER. They may have said how much; I don't recall.

Mr. HALLEY. What did they say? General Streett is the person I presume you mean. Did he say at any point how much gasoline would be required in that area?

General CARTER. I don't remember that he ever said how much. Whatever he could get I assumed he would be very glad to have.

Mr. HALLEY. Did you know how much material would be involved in constructing this project?

General CARTER. No.

Mr. HALLEY. You had no estimate of any kind, had you, of the materials required?

General CARTER. No.

Mr. HALLEY. Did you know how many men would be needed?

General CARTER. No.

Mr. HALLEY. Did you know the problems, as a matter of engineering, of putting the project across?

General CARTER. Well, I had some idea about it.

Mr. HALLEY. What idea did you have? Could you state for the record?

General CARTER. I had an idea that if the Army needed to construct the road and the pipe line, somehow they would get it done, as they always do.

Mr. HALLEY. That is the only idea you had, then?

General CARTER. And I did not think it was an impossible task.

Mr. HALLEY. Of course, that idea is a sort of basic premise. It wasn't necessary to consult the general to get that added to the conference.

General CARTER. That is right.

Mr. HALLEY. Did you know anything about alternative ways of getting that gasoline to that area?

General CARTER. I had ideas.

Mr. HALLEY. What ideas did you have, general?

General CARTER. I had an idea that the gasoline could be gotten to Alaska by barge.

Senator FERGUSON. Did you have expert advice on that?

General CARTER. Well, the expert advice on that was—

Senator FERGUSON (interposing). No. Did you have it?

General CARTER. I didn't have; I know.

Senator FERGUSON. And you didn't seek it.

General CARTER. But I knew generally that there was a shortage of shipping on that inland waterways.

Mr. HALLEY. How did you expect to get the material up to build the refinery and the pipe line except by shipping it?

General CARTER. That required a very small amount of shipping.

Mr. HALLEY. Are you sure of that?

General CARTER. Well, relatively; yes.

Mr. HALLEY. Have you looked into it since and found out how much shipping it did require?

General CARTER. But as a matter of general knowledge I know that you could transport a refinery up there once, with less load on shipping than if you attempted to run a supply line up there constantly.

Mr. HALLEY. I would advise you not to take a definite position on that, General. You may, of course. It is your privilege.

General CARTER. That is my judgment.

Mr. HALLEY. But I advise you to check the figures before you take a position on it under oath on the record.

General CARTER. Will you repeat my statement?

(The reporter read the answer to the last question.)

General CARTER. I think that is correct.

Mr. HALLEY. General, did you ascertain the problems involved in building gasoline storage in that area?

General CARTER. No.

Mr. HALLEY. Do you know the capacity of a large tanker?

General CARTER. No.

Mr. HALLEY. You do not?

General CARTER. No.

Mr. HALLEY. Do you have any idea whether a good-sized tanker will carry a thousand barrels or 10,000 barrels or 100,000 barrels of petroleum products?

General CARTER. It could carry more than 10,000 barrels, I am sure.

Mr. HALLEY. Would it be closer to 10 or closer to 100?

General CARTER. Closer to 100, I would say.

Mr. HALLEY. Did you have any knowledge whatsoever of the feasibility of getting tankers up into that area? Did you consult the Navy on that?

General CARTER. It wasn't my responsibility to consult the Navy. I didn't take it up with them.

Mr. HALLEY. Did you have any knowledge of the prospects of finding oil in that area?

General CARTER. I was pretty well satisfied in my own mind that there was oil in Norman fields.

Mr. HALLEY. And that was the result of the information——

General CARTER (interposing). And that the area below Norman fields had potentialities.

Mr. HALLEY. Was it as a result of that satisfaction in your own mind that you felt the project should be carried through?

General CARTER. It was.

Mr. HALLEY. Where did you get the facts on which you based that information? At the conference?

General CARTER. From the experts.

Mr. HALLEY. You mean from the Imperial Oil people?

General CARTER. And people at the conference who seemed to know something about it.

Mr. HALLEY. Who else seemed to know anything about it?

General CARTER. I don't know just what he contributed, but I think there was a representative there from National Resources.

Mr. HALLEY. Did he know anything about the amount of oil?

General CARTER. I don't recall that he did. The consensus of evidence given there, I think, was that there was oil in the Norman field.

Mr. HALLEY. As a matter of your actual recollection, who had information on whether there was oil?

General CARTER. The best information, that I recall was from these two men of the Imperial Oil Co.

Mr. HALLEY. On the basis of their information, you felt that the project should go through; is that right?

General CARTER. I did.

Mr. HALLEY. When you really get down to it, the question of whether or not there was oil up there is the only question on which you had obtained expert advice on which you personally could act; is that correct?

General CARTER. That is right. That is all I had to do with it.

(Brief recess.)

Mr. HALLEY. Getting back on the record, General, do you feel that that letter—

Mr. AMBERG (interposing). You had better give the date.

Mr. HALLEY. The letter of May 2 from the Imperial Oil, Ltd., gave an optimistic picture of the prospects of locating oil in the Norman wells and the Norman vicinity?¹

General CARTER. I get the impression from the letter that it is a very conservative statement, possibly on the side of pessimism with respect to that.

Mr. HALLEY. It is quite definitely pessimistic, is it not?

General CARTER. I think naturally they would have taken that position.

Senator FERGUSON. General, why would they take it when they were trying to sell oil? They were going to get practically 10 times what we would allow oil to be sold for in America. Isn't that true?

General CARTER. We didn't determine that. We hadn't gotten to that point, Senator, when this thing came up.

Senator FERGUSON. Why do you think they were pessimistic?

General CARTER. I think they were very cautious about giving the impression to the War Department that they were enthusiastic about it.

Senator FERGUSON. General, this is not the original letter. Where would the original letter be?

Mr. AMBERG. This is the original.

Senator FERGUSON. I don't understand it to be.

General CARTER. I assume it is.

Mr. AMBERG. It is a ribbon copy. Look for the copy.

Senator FERGUSON. I am just saying that I never would have assumed that the oil company would have a letterhead, "Imperial Oil, Ltd., 56 Church Street, Toronto, Canada," typewritten on it.

General CARTER. I don't know about that, but that is all I have, all I have received.

Mr. AMBERG. Very possibly he wrote it from New York.

General CARTER. They sometimes do that, Senator.

Mr. HALLEY. In any event, General, these are the people whose advice you sought?

General CARTER. That is right.

¹ Exhibit No. 1101, appendix, p. 9855.

Mr. HALLEY. And it came back pessimistic?

General CARTER. Well, not as pessimistic in the conference as that letter would indicate.

Mr. HALLEY. You said at an earlier point this morning that the reason that you didn't do anything vigorous about that letter was that it merely confirmed what was said at the conference. Now you say the letter came back more pessimistic than the conference.

General CARTER. They pointed out the difficulties of putting in the pipe line, and setting up the refinery, and all that. In the conference we were dealing mostly with whether the oil was there.

Mr. HALLEY. Isn't that what they are writing about here?

General CARTER. That was not pessimistic. In my opinion, I thought the results of the conference indicated that we would find ample oil there.

Mr. HALLEY. Yes; but the results of the letter are much more pessimistic on the subject of whether oil is there, are they not? Isn't that what the letter said?

General CARTER. It might. I have forgotten what it says. Whatever the letter indicates, I was convinced that we had a good oil field up there.

Mr. HALLEY. What convinced you? You had no information at all on any of the other pertinent factors. This is the only one.

Senator FERGUSON. Let me read part of it to you and ask you a few questions about it. [Reading:]

2. To arrange with the company for the drilling of a minimum of nine additional wells in the vicinity of Norman for added production by September 1942.

Were you going to have this all completed by September of 1942?

General CARTER. I don't think they could have expected to have it all completed.

Senator FERGUSON. At least, you wanted nine more wells drilled?

General CARTER. That was important, because the drilling of those wells would further confirm the field.

Senator FERGUSON. Did you wait until they drilled the nine wells before you went ahead with the field?

General CARTER. That was the first important consideration.

Senator FERGUSON. But did you do that? Did you wait until you drilled nine wells before you went ahead with the field?

General CARTER. You mean did we wait on the contract?

Senator FERGUSON. Yes.

General CARTER. I haven't read the contract; I don't know what the terms of it are, but I am assuming that if they drilled and got dry holes and no oil, they wouldn't—

Senator FERGUSON (interposing). Do you know how many of the nine were dry?

General CARTER. No, but I think I heard at one time.

Senator FERGUSON. How many?

General CARTER. I wouldn't want to say, Senator, because I don't know accurately enough to indicate.

Senator FERGUSON. Let's go to the next item. [Reading from Exhibit No. 1101:]

We feel the following facts should be kept in mind:

(a) In the so-called Norman pool five wells have up to this time been drilled, four more or less together and one about 3 miles distant from said group. Of these five wells only three can be called producers.

You knew that?

General CARTER. Yes, sir.

Senator FERGUSON (reading):

Two of the producers are only 150 feet apart.

So, if one of those would go dry, you would expect the other one to be seriously handicapped; isn't that right?

General CARTER. Well, I am not enough of an oil man to say as to whether it would or would not.

Senator FERGUSON. Three are all that are producers out of the five.

General CARTER. Yes, but——

Senator FERGUSON (interposing, reading further):

Two of the producers are only 150 feet apart, and the third is less than one-quarter of a mile distant from these two producers.

That is pretty close, isn't it?

General CARTER. It didn't impress me as being too close.

Senator FERGUSON. It didn't?

General CARTER. No, considering——

Senator FERGUSON (interposing, reading):

The fourth well to date is nonproductive, but we still are endeavoring to make a producer out of it.

They drilled these wells back in 1920, didn't they, General?

General CARTER. Some time ago. I don't know when.

Senator FERGUSON. They were still trying to make one of them a producer, according to this letter.

General CARTER. That didn't impress me particularly, Senator.

Senator FERGUSON. It didn't?

General CARTER. Because I realized that the field was pretty isolated, and they had no market.

Senator FERGUSON (reading from Exhibit No. 1101):

The fifth well, which is approximately 3 miles from the producers, was a dry hole.

That would show a limitation in the field, wouldn't it?

General CARTER. Not to my mind.

Senator FERGUSON. It wouldn't?

General CARTER. I would want further tests of the limitation of the field before I would take that as final.

Senator FERGUSON. Listen to what he says [reading further]:

Accumulation of oil in this pool is controlled either by the existence of a shattered shale horizon or a very poorly developed sand lens, and the lateral continuity of either of these conditions may be too limited for the development of any more than a very small pool.

General CARTER. That didn't impress me.

Senator FERGUSON. That didn't impress you?

General CARTER. No, sir.

Senator FERGUSON (reading further):

We should add that two additional dry holes were drilled about 5 miles to the southeast of the Norman Wells in an endeavor to extend the field in that direction.

That is the direction you told us today that they expected to go?

General CARTER. That is right.

Senator FERGUSON. Here you have evidence that they tried to drill there 5 miles down, and they found two dry holes.

General CARTER. Of course, exploration for oil is not determined by nine wells.

Mr. HALLEY. What did you use to determine it? Did you have anything but your imagination?

General CARTER. Oh, yes. I have general knowledge of how oil has been developed out in my own State, in Texas.

Mr. HALLEY. Would you expect to find oil in Alaska because you found it in Texas or the Yukon?

General CARTER. I would take the geologists' advice with respect to that.

Mr. HALLEY. Very well. What geologists did you seek advice from?

General CARTER. Well, these companies. These are officers—

Senator FERGUSON (interposing). These two men. Here is a geological report. He tells you that it looks to him as if it is a very limited field.

General CARTER. Even so, I don't think that proves it.

Senator FERGUSON. Of course it doesn't prove it.

General CARTER. You can't tell what is under the grass roots.

Mr. HALLEY. Would you dig wells just any place at all because you can't tell whether or not there is oil?

General CARTER. You do it scientifically these days, and the geologists have declared that area up there was good potential oil.

Senator FERGUSON. All right; I would like to have those reports.

General CARTER. I haven't any more reports than I have given you, Senator.

Senator FERGUSON. Who told you as a geologist that there was oil there, and the amount?

General CARTER. All the evidence I have on it I got in these conferences.

Mr. HALLEY. You mean one conference, do you not?

General CARTER. I mean whatever conferences where people with knowledge were present.

Mr. HALLEY. It is quite important that we be precise here. I know that you couldn't have been the successful accountant you are without being precise and realizing the importance of precision. How many conferences were there on this topic of whether there was oil in Norman Wells?

General CARTER. These are the only conferences I attended.

Mr. HALLEY. What was the other conference besides the one of April 29?

General CARTER. I have known about oil in Northwest Canada for a great many years.

Mr. HALLEY. What conference, other than the one of April 29, did you attend, General, to discuss the presence or absence of oil in the Norman Wells area?

General CARTER. I have indicated all the conferences I have attended on this subject where oil and the road were discussed.

Mr. HALLEY. Would you state which other conference or conferences dealt with the problem of whether or not there was oil at Norman Wells or in the Norman Wells vicinity?

General CARTER. The only one that I would give any weight to was the one where the experts were present.

Mr. HALLEY. Was there any other one at all?

General CARTER. Not that I attended.

Mr. HALLEY. Why did you persist in using the plural, General?

General CARTER. Using what?

Mr. HALLEY. The plural, "conferences," instead of "a conference."

General CARTER. I gained knowledge of how many wells were in operation up there at the first conference. We didn't have any experts.

Mr. HALLEY. Which conference is that?

General CARTER. One of the early conferences on this road and these projects.

Mr. HALLEY. You weren't satisfied with that knowledge?

General CARTER. No.

Mr. HALLEY. You felt that you had to have the experts.

General CARTER. That is right.

Mr. HALLEY. The only experts you had were the men who came to the conference of April 29.

General CARTER. They were recommended to me as the best posted men on the subject.

Mr. HALLEY. What did they say in their letter of May 2? They were pessimistic, were they not?

General CARTER. They were pessimistic, but I don't think they were pessimistic enough in the conference to influence my mind with respect to it.

Senator FERGUSON. When a man gives you a verbal statement and within a couple of days you get in writing a change in attitude, what are you going to take to rely upon?

General CARTER. I would try to confirm to my own satisfaction by going into the field and drilling a reasonable number of wells. That is what we proposed to do.

Mr. HALLEY. Didn't you also propose to go right ahead and build a pipe line and a refinery?

General CARTER. I don't think the pipe line—I don't know what the decision would have been.

Senator FERGUSON. What were you deciding, just to drill wells, General, or were you deciding more?

General CARTER. I was trying to help them decide whether or not this field offered possibilities.

Senator FERGUSON. All right. Then as far as you were concerned, your opinion went just to nine more wells to see whether or not they had oil.

General CARTER. My opinion went to the point of feeling that they should explore the field to find the facts.

Mr. HALLEY. When you got this memorandum of April 29 to General Somervell, when you received a copy of it, I presume you read it.

General CARTER. That is right.

Mr. HALLEY. You saw that it went much further than simply advising exploration; that it actually recommended the entire project. Did you take any exception to it?

General CARTER. No; but that project would have been changed had we not discovered that Norman field—if Norman field had turned out to be no good.

Mr. HALLEY. When did you find out whether or not the Norman field was good; do you know, General?

General CARTER. I don't know the date, but——

Mr. HALLEY (interposing). You took the position a few minutes ago with Senator Ferguson that, on the information you yourself had up to April 29, you would not have done more than start exploration. Is that right?

General CARTER. No. I would have made my plans for the whole project.

Mr. HALLEY. Would you have started buying pipe and shipping pipe and digging holes and putting up a refinery?

General CARTER. I think I would have made my plans to get the pipe up there.

Mr. HALLEY. And to build the refinery?

Senator FERGUSON. You think you would have shipped them up before you drilled the holes?

General CARTER. It wouldn't have been possible to ship them up before I got to that point, in my opinion.

Mr. HALLEY. Now, General, would you have shipped the components of the refinery and all the machinery up before you knew whether there was a field?

General CARTER. No.

Mr. HALLEY. You would not?

General CARTER. I wouldn't have; no.

Mr. HALLEY. But doesn't this directive say go right ahead and do it?

General CARTER. No. The Chief of Engineers, I think, would have stopped it at once if he had found no oil.

Mr. HALLEY. Will you check that and see how the directive reads [handing paper to General Carter]?

General CARTER. Of course, the production of the field, without drilling any wells, as I understood it, could be stepped up; and on the basis of that quantity, with the prospects for developing more oil, I think they would have been justified in making their plans and moving as fast on this as they could.

Mr. HALLEY. Then you take the position that they should have moved the material right up immediately?

General CARTER. Well, I think——

Mr. HALLEY (interposing). Is that your position?

General CARTER. Yes.

Mr. HALLEY. Despite the pessimistic letter from the Imperial Oil people?

General CARTER. Yes, sir; because I felt confident we were in a good field.

Mr. HALLEY. What did you have to make you feel confident of it?

General CARTER. The evidence that was given in these conferences.

Mr. HALLEY. Are you referring to any evidence other than the testimony or statement you received from the Imperial Oil people?

General CARTER. The discussions at this conference when the various experts were present.

Mr. HALLEY. What other experts knew anything about the presence of oil at this field?

General CARTER. I relied mostly upon these men who had been in the field and who were sent to us as the best informed individuals.

Mr. HALLEY. And those were the Standard Oil people?

General CARTER. The Imperial Oil people.

Mr. HALLEY. Were there any other experts at all?

General CARTER. None. The names are all here.

Mr. HALLEY. What we want to know is whether you considered any of those names experts.

General CARTER. I considered the advice of these two individuals from the Imperial Oil Co. as the most reliable we had.

Mr. HALLEY. Did you have any other advice of a reliable nature at all?

General CARTER. I don't recall having any individual expert other than these in the conferences. There may have been others that I didn't know of and who had advised someone who was present at the conference who might have quoted them, but the general impression that I got at this conference was that we were pretty well assured that the development of that field would produce oil.

Mr. HALLEY. You got it from these two Imperial Oil people; is that right?

General CARTER. I wouldn't say wholly from them.

Mr. HALLEY. Who else was there on whom you could rely, General, who knew anything about whether there was oil up there?

General CARTER. That was sufficient for me, anyway.

Mr. HALLEY. You mean the two Imperial Oil people.

General CARTER. Plus what others had to say and what they had learned.

Mr. HALLEY. Had any of the others spoken to the two Imperial Oil people before?

General CARTER. I don't think they had ever seen them before.

Mr. HALLEY. The purpose of calling the two Imperial Oil people down was to educate everybody; was it not?

General CARTER. Oh, yes, sir; for the information of the War Department as a whole.

Mr. HALLEY. Do you feel that the two Imperial Oil people changed their position in the letter from the position they had taken in the conference?

General CARTER. I don't think so, unless the letter might be a little more pessimistic.

Mr. HALLEY. But they were pessimistic at the conference, anyway?

General CARTER. I think they were conservative.

Mr. HALLEY. Were they pessimistic?

General CARTER. I wouldn't say they were as pessimistic as the letter indicates.

Mr. HALLEY. The letter, you admit, is pessimistic.

General CARTER. Yes.

Mr. HALLEY. Would you say that they were pessimistic or optimistic or noncommittal at the conference?

General CARTER. I think they were factual as far as they had facts, and I think they were optimistic, in my opinion.

Mr. HALLEY. When you got that letter, did you write back to them and say, "Here, why did you change your position?"

General CARTER. I never wrote them anything.

Mr. HALLEY. Did you go to General Somervell and say, "These Imperial Oil people have changed their position. Maybe we had better reconsider this"?

General CARTER. I passed the letter up to the higher echelon and left to them.

Mr. HALLEY. Despite that letter, it is your opinion that immediately, as of April 29, and as soon as possible thereafter, materials should have been shipped up there for the construction of the pipe line and the refinery.

General CARTER. Under the circumstances, I would have done just as was done. I would have proceeded with the plans as quickly as possible, knowing that there would be delays and that if anything developed that made the development of the oil appear impractical, we could stop it.

Mr. HALLEY. In the meantime, though, you approved what was done, which was to ship materials off in boats.

General CARTER. I had nothing to do with that.

Mr. HALLEY. But do you think it was right now? What is your position?

General CARTER. I think it was absolutely correct under the circumstances.

Mr. HALLEY. General, is it the purpose of the General Staff, of the people in the various high echelons who sit here in Washington in the War Department, to have the broad view, to take all the relative facts rather than to get into a narrow field and see only one phase of the war effort?

General CARTER. I think the General Staff has a very broad view.

Mr. HALLEY. That is what they are there for; is it not?

General CARTER. Yes; I think that is right.

Mr. HALLEY. To coordinate all phases.

General CARTER. That is right.

Mr. HALLEY. Did you consult anybody or do you have any information concerning the state of supply of the Alaskan Defense Command during the winter and, for that matter, the summer of 1942?

General CARTER. No; I had no occasion to do that.

Mr. HALLEY. Would you think it would be a relevant question to find out whether the Alaskan Defense Command had enough ships and shipping going from the Pacific coast to Alaska to provide the bare necessities for the men who were fighting the war in the Aleutians? Would that be relevant to the question of whether you could use shipping to take pipe up to Skagway at a time when you weren't even sure that oil could be obtained at Norman Wells?

General CARTER. I can only express my own opinion about that.

Mr. HALLEY. Well, would you, please?

General CARTER. In my opinion, I think this project was most important. It was general knowledge that shipping was very short and that if this proved successful, it would be a great boon to the war effort.

Mr. HALLEY. In what way?

General CARTER. In that it would facilitate the routing of planes over the C route.

Senator FERGUSON. General, you knew it would take a couple of years; didn't you?

General CARTER. Oh, no; I didn't.

Senator FERGUSON. You didn't know that?

General CARTER. No, no. I thought—

Mr. HALLEY (interposing). Did you have any idea of how long it would take?

General CARTER. I personally thought that the project would be completed very quickly.

Mr. HALLEY. Did you have any information on the subject?

General CARTER. No; but I know generally how the engineers work when they get at a thing.

Mr. HALLEY. You had no estimates on this particular thing.

General CARTER. No; I didn't think it was necessary. In my own opinion, it wasn't necessary.

Mr. HALLEY. If someone came along with a proposition to construct a bridge to the moon, would you say, "Oh, well, the engineers can do anything they decide to do. Let's go"?

General CARTER. No; I wouldn't do that. I would give them my honest opinion, advising against it.

Mr. HALLEY. Did you ever consult with Mr. Stefansson, the explorer, on the project?

General CARTER. I never have.

Mr. HALLEY. Have you heard of Mr. Stefansson?

General CARTER. Oh, yes.

Mr. HALLEY. You know he was very familiar with the territory involved?

General CARTER. Yes.

Mr. HALLEY. Did you ever attempt to ascertain from him the difficulties which might make this project not too incomparable with the bridge to the moon?

General CARTER. No; I have never seen Mr. Stefansson.

Mr. HALLEY. Did you ever ascertain from Mr. Stefansson his views as to where the pipe line should go in order to be a feasible project?

General CARTER. No; I never have.

Mr. HALLEY. You thought speed was important, that this thing should be developed fast.

General CARTER. I thought it was the essence of the whole plan.

Mr. HALLEY. And it would make a lot of difference whether you tried to lay that pipe line over very difficult terrain or whether you picked an easier route; would it not?

General CARTER. I was impressed by the statement that the pipe line could be laid on top of the ground and that the snows of the winter would protect it.

Mr. HALLEY. That would be true in any part of that area. The question would be that of which particular route you would pick; would it not?

General CARTER. You couldn't go any direction hardly without going over a difficult route in that country.

Mr. HALLEY. Did you consider at all whether the refinery should be at Whitehorse or Fairbanks?

General CARTER. Oh, I felt it should be at Whitehorse.

Mr. HALLEY. Why?

General CARTER. Because it is about the center of the road.

Mr. HALLEY. Then you considered this whole project simply as an attempt to supply traffic along the road.

General CARTER. Primarily, yes.

Mr. HALLEY. And not for use in the defense of Alaska.

General CARTER. I think the defense of Alaska required anything that the route would produce, that they get it in full quantity.

Mr. HALLEY. Wouldn't you be in much better position for the defense of Alaska if you were up at Fairbanks?

General CARTER. I haven't studied that much, but I don't think so.

Mr. HALLEY. You would be about 500 miles closer; would you not?

General CARTER. I know, but in these days distance doesn't make so much difference.

Mr. HALLEY. Even in Alaska?

General CARTER. Well, of course, in Alaska the distance is more important than it is in Texas, but the Air Force is pretty well able to go any place now.

Mr. HALLEY. Did you ever consult with Mr. Stefansson on the relative advantages of Whitehorse and Fairbanks for this refinery?

General CARTER. I never have, and I wouldn't, because I wouldn't regard his judgment on it as good as the judgment of others.

Mr. HALLEY. What others do you have in mind?

General CARTER. I think those who attended the conference from the Engineer Corps.

Mr. HALLEY. Who were they that you have in mind?

General CARTER. I would start at the top, General Marshall. I would say he would have a pretty good idea.

Mr. HALLEY. Was he at the conference?

General CARTER. No.

Mr. HALLEY. You were talking about the judgments on which you relied.

General CARTER. The final judgment and decision on this matter is made at a higher level than our conference.

Mr. HALLEY. I am talking about the recommendation which you received, which was made as a result of your conference, and which you say you acquiesced in.

General CARTER. I would rely upon General Robins, General Sturdevant. General Reybold wasn't at the conference. General Sturdevant and General Robins were there.

Mr. HALLEY. No; they weren't.

General CARTER. They were at one time.

Mr. HALLEY. They weren't at this particular conference, were they?

General CARTER. Not the 29th; no, sir.

Mr. HALLEY. Had they at a previous conference stated that they thought this project should be undertaken?

General CARTER. I don't recall that they did state that.

Mr. HALLEY. How could they say where the refinery should be if they didn't even state whether the project should be considered?

General CARTER. They were capable of determining the best place for it.

Mr. HALLEY. Did they so determine?

General CARTER. They must have at one time.

Mr. HALLEY. Did they convey that determination to you?

General CARTER. Never.

Mr. HALLEY. Why do you think that Whitehorse was the best place for the refinery?

General CARTER. In the first place, because it is the center of the road. It is near the water.

Mr. HALLEY. Suppose Mr. Stefansson had told you—and this is purely hypothetical—that it would take 2 years to build the pipe line

to Whitehorse, whereas we could build it to Fairbanks in 6 months, would that have made a difference in your mind?

General CARTER. No. I would have relied upon the engineers.

Mr. HALLEY. What engineer gave you any advice whatsoever on that subject?

General CARTER. I didn't seek any advice, nor did I get any particular advice from them.

Mr. HALLEY. Wouldn't that be a most important problem?

General CARTER. Oh, yes; very important.

Mr. HALLEY. You got no advice on it, and yet this memorandum in which you acquiesce orders the engineers to build a refinery at Whitehorse and to build a pipe line to Whitehorse.

General CARTER. If the engineers found Whitehorse was not the proper place for it or that it was impractical for any reason, they had full authority to put it where it should be.

Mr. HALLEY. I don't see that in this memorandum or directive.

General CARTER. That is the way the Army operates.

Mr. HALLEY. Did they have authority to decide that perhaps another place would be better?

General CARTER. I have no doubt that if the engineers found insurmountable difficulties or extreme disadvantages in Whitehorse, they would have made it known to higher authority.

Mr. HALLEY. We are not talking about insurmountable difficulties. We are just talking about the possibility of doing the job much faster if you went to Fairbanks. The engineers had no authority to survey a route to Fairbanks, had they?

General CARTER. I don't know.

Mr. HALLEY. They were told to survey a route to Whitehorse.

Mr. AMBERG. It depends on the wording of the directive. That is not the directive. It would depend on the words of the directive, and that is not the paper you have in your hand.

Mr. HALLEY. Do we have a directive?

Mr. AMBERG. We had it. It may well be that the directive says Whitehorse, but the memorandum from Graham is not the directive.

Mr. HALLEY. We don't have the directive itself here.

(Brief recess.)

Mr. HALLEY. There is nothing else, General, that I have to ask, but if there is anything that you would like to add to the record, I wish you would do it.

General CARTER. I would like to correct the statement that I made that secrecy had anything to do with not calling in other agencies. As a matter of fact, I had no responsibility and felt no obligation to do other than what I did do under the circumstances, and it was the responsibility of others if other agencies were to be brought into it.

Mr. HALLEY. Did you have any questions, Mr. Amberg?

Mr. AMBERG. No.

Mr. HALLEY. Mr. Robinson.

Mr. ROBINSON. I want to refer to just one point. The project really had its genesis in this memo from Dean Graham to the Commanding General. That is dated April 29, and I think it is marked, "Approved, Somervell, April 29."¹

¹ Exhibit No. 1095, appendix, p. 9842.

General CARTER. That is correct.

Mr. ROBINSON. I refer you to the Imperial Oil letter of May 2 [handing paper to the witness] and the opening sentence there.¹ It says, "After reviewing the memorandum," That is apparently the memorandum entitled "Fuel Oil Supplies, Northwest Area" referred to there.

General CARTER. This memorandum [indicating].

Mr. ROBINSON. Dean Graham's memorandum.

General CARTER. I took it so; yes, sir.

Mr. ROBINSON. That was given to them at the conference. Isn't that what the Imperial Oil's letter there indicates?

General CARTER. This letter [indicating]?

Mr. ROBINSON. Yes.

General CARTER. It couldn't have been because it is dated May 2 in Toronto.

Mr. HALLEY. I believe Mr. Robinson's question is whether or not the Imperial Oil people received a copy of Graham's April 29 memo.

General CARTER. I don't know.

Mr. ROBINSON. Read the opening sentence of the letter, General.

General CARTER. It says here [reading from Exhibit No. 1101]:

After reviewing the memorandum dated Washington, April 29, 1942, subject: Extensions for fuel supply Air Corps in Canada and Alaska—

Mr. ROBINSON. A copy of which was given to our representative.

General CARTER (continuing).

copy of which was given to our representatives—

Mr. AMBERG. It does not say at the conference, does it?

General CARTER. I don't know when they got what he is referring to here unless it is that.

Mr. HALLEY. It was probably right at the conference, but do you know whether it was given to them shortly after the conference?

General CARTER. I don't know.

Mr. HALLEY. It would seem so from the letter.

General CARTER. It would seem so.

Mr. AMBERG. It couldn't have been at the conference because it was written after the conference.

Mr. HALLEY. But it could have been the same day.

Mr. AMBERG. It was the same day.

Mr. ROBINSON. There is nothing to indicate that it was written after the conference.

Mr. AMBERG. There certainly is. It says "as the result of a conference" in the April 29 letter.

Mr. HALLEY. It all happened in 1 day, and I can't see any particular point in the chronology.

Mr. AMBERG. I can't, either, but Mr. Robinson applied the chronology.

Mr. HALLEY. Do you have anything else?

Mr. ROBINSON. That is all I had.

(Off the record.)

Senator FERGUSON. I think that is all, then, gentlemen.

(The committee adjourned at 1:25 p. m.)

¹ Exhibit No. 1101, appendix, p. 9855.

INVESTIGATION OF NATIONAL DEFENSE PROGRAM

TUESDAY, NOVEMBER 16, 1943

UNITED STATES SENATE,
SUBCOMMITTEE OF THE SPECIAL COMMITTEE
INVESTIGATING THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

EXECUTIVE SESSION ¹

The subcommittee met at 12 noon in room 455, Senate Office Building, Washington, D. C., Senator Homer Ferguson, presiding.

Present: Senators Homer Ferguson, and Harley M. Kilgore.

Present also: Rudolph Halley, Executive Assistant to the Chief Counsel; H. J. Robinson, Investigator, and Brig. Gen. Frank E. Lowe, Executive Officer to the Committee.

Senator FERGUSON. Mr. Bimel and Mr. LeSueur, will you raise your right hands? Do you solemnly swear, in the matter now pending before the committee, you will tell the truth, the whole truth, and nothing but the truth, so help you God?

Mr. BIMEL. I do.

Mr. LE SUEUR. I do.

TESTIMONY OF FRED B. BIMEL AND RICHARD LeSUEUR, OF THE IMPERIAL OIL CO., TORONTO, CANADA

ATTITUDE OF IMPERIAL OIL CO. TOWARD PROJECT

Senator FERGUSON. Were you down at the meeting of April 29?

Mr. BIMEL. Yes, sir.

Senator FERGUSON. Then probably we ought to have your testimony first. Have you stated your full name for the record?

Mr. BIMEL. Yes, sir.

Senator FERGUSON. And what is your address?

Mr. BIMEL. Toronto, Canada.

Senator FERGUSON. How did you come to go down to the meeting of April 29, 1942?

Mr. BIMEL. I was the officer that they had advised they wanted; the Army wanted to talk to somebody from the Imperial regarding the Fort Norman production.

Senator FERGUSON. And you are connected with the Imperial? What is your connection with the Imperial Oil?

Mr. BIMEL. Well, I don't know, it's kind of hard to state. I am not an officer of the company. I was in the producing department.

Senator FERGUSON. You are not an officer?

Mr. BIMEL. Not an officer of the company.

¹ Publication authorized by the chairman, January 15, 1944.

Senator FERGUSON. But you are in the producing department?

Mr. BIMEL. Yes; in the producing department. I am a director of International Petroleum and we work in the production end for South American interests and for the producing end of the Imperial Oil.

Senator FERGUSON. Well, now, what is the International Petroleum? What company is that?

Mr. BIMEL. Well, it is a subsidiary of Imperial.

Mr. LESUEUR. International Petroleum is a subsidiary of Imperial Oil, Limited, and operates——

Senator FERGUSON. Is a subsidiary of what?

Mr. LESUEUR. Imperial is a subsidiary of Standard Oil of New Jersey, and the International operates in South America entirely outside of Canada.

Senator FERGUSON. Have you ever been in the oil fields up at Norman Wells?

Mr. BIMEL. No, sir.

Senator FERGUSON. You never made an examination of them?

Mr. BIMEL. No, sir.

Senator FERGUSON. Did you have any personal facts in relation to them, any personal knowledge?

Mr. BIMEL. Personal knowledge?

Senator FERGUSON. Yes; from the records.

Mr. BIMEL. From the records; yes.

Senator FERGUSON. Would you state who sent you down, I mean, who contacted you?

Mr. BIMEL. Well, Mr. Holman of the Standard Oil of New Jersey called, and happened to connect with my office. At the time, he asked me if I would come down.

Senator FERGUSON. And will you explain what took place when you got down there?

Mr. BIMEL. Well, we were called by General Carter. We had a committee of gentlemen, I can't name them, I can't recall their names.

Senator FERGUSON. Was General Somervell there?

Mr. BIMEL. I don't think he was present. I am not sure. I shouldn't say that because I am not positive who the gentlemen were present. I was introduced to them but we didn't make any record of the meeting so I don't recall.

Senator FERGUSON. Was there a secretary there to take notes or anything?

Mr. BIMEL. There was somebody present who was taking notes. He was in uniform, but I don't know what his connections were.

Senator FERGUSON. Taking all what was said? Was it all taken down?

Mr. BIMEL. No; I don't think so. I think it was just a general discussion, with them wanting some information.

Senator FERGUSON. How many meetings did you attend? Any after the twenty-ninth?

Mr. BIMEL. Well, let's see. As I recall, I think the first meeting I attended was on the 28th.

Senator FERGUSON. The 28th?

Mr. BIMEL. Yes.

Mr. HALLEY. Were any of your representatives present? Who of your representatives were present?

Mr. BIMEL. Mr. O. C. Wheeler.

Mr. HALLEY. Yes, and who else?

Mr. BIMEL. And Morgan Walker from the New York office came along.

Senator FERGUSON. Where is Wheeler from?

Mr. BIMEL. Toronto.

Senator FERGUSON. He came down with you?

Mr. BIMEL. He came down with me. He is our chief geologist.

Senator FERGUSON. Now, will you tell us, how many meetings did you attend? Were there three of them? Two days?

Mr. BIMEL. Two days. I think there was a preliminary meeting on the 28th and then there was one following that on the 29th.

Mr. HALLEY. But there was one on the 29th or the 30th?

Senator FERGUSON. Could that have been?

Mr. BIMEL. I beg your pardon?

Senator FERGUSON. Could that have been—that there was one on the 29th and one on the 30th instead of the 28th and 29th?

Mr. BIMEL. Yes; possibly. It could have been. I don't recall.

Mr. HALLEY. In any event, were there just 2 days?

Mr. BIMEL. Two days, as I recall it.

Senator FERGUSON. Were the same parties present at both meetings?

Mr. BIMEL. No; I think at the second meeting—that was held in the Engineering Department. The first meeting was in General Carter's office and the second meeting, following that, I think, was in General Robins' office.

Senator FERGUSON. Do you remember General Graham, an elderly gentleman, with gray hair or white hair?

Mr. HALLEY. Colonel Graham.

Mr. BIMEL. Oh, yes; Colonel Graham. He was present at the first meeting.

Senator FERGUSON. He was in civilian clothes. But not at the second meeting?

Mr. BIMEL. Not that I recall.

Senator FERGUSON. Now, I think we're getting the meetings straightened out. All right; tell us what took place at the first, and then the second meeting.

Mr. BIMEL. Well, General Carter opened the meeting by stating that he understood the Imperial had some oil wells in the Fort Norman area, and he was inquiring as to the nature of the wells and how much oil they produced, and what the prospects might be of getting a decent oil there; that they were very much interested in finding production in that locality.

Senator FERGUSON. And what did you have to say and what did Wheeler say?

Mr. BIMEL. Well, we told them the physical facts as we saw them, based on quite a number of years of experience; that is, observations of the well performance. We told them we had—I think it was four wells—three on production and one, No. 1, which had not been completed at that time, that is, successfully completed.

Senator FERGUSON. Did you tell them how many dry ones you had?

Mr. BIMEL. Well, we had no dry holes in the particular area of production. We had drilled two or three dry holes several miles from there, but nothing that would have any real effect upon the present, where we were getting our present production.

Senator FERGUSON. You did tell them how much oil you could produce from those wells that you had?

Mr. BIMEL. Yes, sir; we told them. I think it was four or six hundred barrels from the 3 wells that we had there, about 400 barrels, I think it was, that we had, but that we didn't know what the ultimate production was or how much production they could produce, because we had only produced as we required the production for our local business.

Senator FERGUSON. In other words, you ran them only several months in the year?

Mr. BIMEL. That's right.

Senator FERGUSON. And you told them that you didn't know what they would do if they were running the year round?

Mr. BIMEL. That's right.

Senator FERGUSON. Did you explain the kind of sand they were in?

Mr. BIMEL. Well, the knowledge of the formation was rather limited. At the time that these wells were drilled, the technique of knowing it wasn't thoroughly developed, so we didn't have a very good knowledge at the time of what the sand conditions were.

Senator FERGUSON. When did you come to the conclusion that you could produce more oil than 400 barrels?

Mr. BIMEL. At the meeting that we attended, the original meeting. We told them the number of years these wells had been producing and it was our judgment that these wells had not shown—that is, the records indicated that there had not been any decline in the working pressure of the wells, and therefore it looked as though the reservoir would possibly contain two and a half to three million barrels, based on the wells we had.

Mr. HALLEY. Had you been optimistic about the proposition which was put to you by the Army at that time?

Mr. BIMEL. We thought we were very conservative in every statement that we made.

Mr. HALLEY. Did you state that you thought there was a likelihood of producing three to five thousand barrels a day?

Mr. BIMEL. I think we made a statement that we could possibly produce up to about 3,000 or 3,500 barrels a day.

Mr. HALLEY. Did you warn them that the wells you had had not been worked so steadily and that you could not predict the ability of the field to support stable production?

Mr. BIMEL. Yes, sir; we also told them that.

Mr. HALLEY. And did you say that the possibility of the development and production required by the Army was uncertain?

Mr. BIMEL. That is true. We didn't have enough knowledge to make a very positive statement, and knowing the seriousness of the need, we considered that all our statements were very conservative.

Senator FERGUSON. Did you talk about the temperature of the flow over the mountains?

Mr. BIMEL. Yes; we talked about the pour point of the oil.

Senator FERGUSON. What would that be?

Mr. BIMEL. Well, at that time, our records show it was minus 70° F.

Senator FERGUSON. Well, when you went back to Toronto, you got in touch with Mr. LeSueur?

Mr. BIMEL. When we completed our discussions and had given them all the physical facts we had, I got in touch with Mr. LeSueur and

he came down to New York and we came in from there on down to Washington for other discussions, and from there on, Mr. LeSueur handled the matter.

Senator FERGUSON. I noticed that he wrote a letter from New York on about the 2d of May.¹ Do you know about that letter?

Mr. BIMEL. Yes, sir.

Senator FERGUSON. Had you told him so that he had the facts when he wrote that letter?

Mr. BIMEL. We gave him the facts as we understood them. We gave him what information we were able to pick up from our discussions.

Senator FERGUSON. Mr. LeSueur, had you been in Washington, before that letter was written?

Mr. LESUEUR. Not at any of the discussions, Senator.

Senator FERGUSON. Why did you write the letter of May 2?

Mr. LESUEUR. Well, we wrote the letter to state our position. I met Mr. Wheeler and Mr. Bimel and Morgan Walker, and the letter was to set forth the full situation.

Mr. HALLEY. Do you have a copy of that letter with you?

Mr. LESUEUR. Yes; I have a copy.

Mr. HALLEY. Would you let the committee have it for the moment? I would like Mr. Bimel to look at it and see whether the letter states the position.

Senator FERGUSON. He ought to read the letter.

Mr. HALLEY. As he stated it orally at the conference?

Senator FERGUSON. I mean he ought to read it to himself so that he may know whether or not that letter stated the facts as stated by the oil company at the conference.

Mr. LESUEUR. Here is a copy of the letter.

Senator FERGUSON. You were attempting, Mr. LeSueur, to write to the Government what you had understood took place at the conference; isn't that right—or isn't it right?

Mr. LESUEUR. No; a directive had been issued, Senator, and that directive contained certain clauses. Our object was that the Government would have full knowledge of our views as to the different points in that directive which concerned Imperial Oil. We were ready to cooperate and do our utmost if the War Department decided to go ahead, but we didn't want to go ahead without their knowing the hazards in the operation.

Senator FERGUSON. But had you questioned the gentlemen who were at the meeting, to see whether or not they had exceeded the real facts?

Mr. LESUEUR. No; I did not.

Senator FERGUSON. In other words, to get the directive?

Mr. LESUEUR. Oh, no; I didn't discuss that with them at all. What we discussed were the actual facts of the situation.

Senator FERGUSON. Did they know what was in the letter when it was written, that is, these three men?

Mr. LESUEUR. Yes.

Senator FERGUSON. Then you came down after that, did you?

Mr. LESUEUR. I was asked to come down and I came down and met General Sturdevant and others. There was quite a group. We discussed the possibilities of a contract and of our going ahead to produce, as an objective, 3,000 barrels per day.

¹ Exhibit No. 1101, appendix, p. 9855.

Mr. HALLEY. Do you remember that letter of May 2? Have you read it recently?

Mr. LESUEUR. Oh, yes; I remember it.

Mr. HALLEY. In that letter, you stated that the petroleum produced at the Norman field was not suitable for aviation gasoline and that, I believe, 60 percent of the ingredients of aviation gasoline would have to be imported; is that right?

Mr. LESUEUR. That was our position at the time. I believe now we find that the oil has about 18.5 percent of aviation base stock and will produce a very good aviation base stock.

Mr. HALLEY. As of the present time, do any of the ingredients have to be imported?

Mr. LESUEUR. We are still importing; yes.

Mr. HALLEY. Well, when the refinery is completed, will you have to import?

Mr. LESUEUR. What do you mean—the refinery at White Horse?

Mr. HALLEY. Yes.

Mr. LESUEUR. Well, that I don't know; I know nothing about the refinery at White Horse.

Mr. HALLEY. Well, assuming you had a proper refinery at White Horse, does the petroleum produced at Norman Wells contain the necessary elements so that none would have to be imported, or would you have to blend other ingredients?

Mr. LESUEUR. I think that would depend on the type of refinery they are putting up. If they have alkylation and polymerization and the other elements there, perhaps they wouldn't need to import. I am not sufficiently an expert to tell you.

Mr. BIMEL. I would say they could produce the same as we could. With the proper equipment, the oil has the necessary constituents in it to produce octane gasoline.

Senator FERGUSON. Are you producing 100-octane at Calgary?

Mr. BIMEL. Yes.

Senator FERGUSON. How much oil are you producing there? I mean, how much gasoline are you producing at Calgary?

Mr. BIMEL. I think there are about 600 barrels a day, aren't there, Mr. LeSueur?

Mr. LESUEUR. Yes.

Senator FERGUSON. Have you a big field there, that they could get oil from there?

Mr. LESUEUR. No; they are very short in that area.

Senator FERGUSON. What about this oil up at Edmonton? Have you got oil there?

Mr. LESUEUR. No; there is no oil there.

Mr. BIMEL. There is just a little heavy oil there, not very much. There are two or three hundred barrels of heavy fuel oil there; very little for gasoline.

Mr. HALLEY. Now, do you at the present time have any connection with the Canol projects other than your title to the basic leases?

Mr. LESUEUR. Well, I am vice president of the Imperial Oil Co., and more or less of—I would say, in general direction of the Canol projects.

Mr. HALLEY. What is your company doing on the projects?

Mr. LESUEUR. We call our operation the Imperial Oil-Canol project. Our company is concerned with two things, production and exploration.

Mr. HALLEY. Are you concerned with pipe lines?

Mr. LESUEUR. No; we have no connection either with the construction, or the maintenance, or the operation of pipe lines.

Mr. HALLEY. Are you at all concerned with the refinery?

Mr. LESUEUR. No; we have no connection with that at all.

Mr. HALLEY. But you are handling exploration, drilling, and production of petroleum?

Mr. LESUEUR. That's right.

Mr. HALLEY. Are you doing the drilling or are other companies doing that?

Mr. LESUEUR. No; we are doing a certain part of the drilling. We are doing all the drilling in the development work. The exploratory work is being done, I think, largely by the Noble Drilling Co. under a contract with the Government, which we supervise.

Mr. HALLEY. As of the present time, how many wells have you driven in your fields?

Mr. LESUEUR. I don't know just how far I can give you that information. We are under restrictions and we are ordered to give no information on quantities and a certain number of things like that. I am quite willing to aid the committee in every way, but—

Senator FERGUSON. You mean by the Canadian Government?

Mr. LESUEUR. No; by the War Department.

Senator FERGUSON. By our War Department, the United States War Department?

Mr. LESUEUR. Yes; that's right.

Senator FERGUSON. When did you get those instructions?

Mr. LESUEUR. Right from the beginning from the time the contract was made.

Mr. HALLEY. Have you asked the War Department to permit you to give those figures?

Mr. LESUEUR. No, I have not. I have had no chance to communicate with them. I just got your message yesterday at 11 o'clock and we had to rush to get down here.

Mr. HALLEY. Well, didn't you advise the War Department that you were coming down here to testify?

Mr. LESUEUR. We didn't advise them. We were talking to another man this morning, but that's all.

Mr. HALLEY. I see. Well, have you given the War Department those figures?

Mr. LESUEUR. The War Department has all the information we have.

Mr. HALLEY. Well, we will get that information from the War Department, Senator.

How many wells have you drilled?

Mr. LESUEUR. We have drilled, all together, I think, about 30 wells. I can't give you the exact number, but approximately 30.

Mr. HALLEY. In what area?

Mr. LESUEUR. Practically all on our original leases. All the drilling up to date, which has produced commercial production, has been on our original leases or extensions of them in the islands just off our area in the river.

Mr. HALLEY. How many of them have proved dry?

Mr. LESUEUR. Dry? Oh, we had two or three, perhaps, that proved dry.

Senator FERGUSON. Out of 30 you have only 3 dry ones?

Mr. LESUEUR. I would say not more than three.

Senator FERGUSON. What territory do the 30 cover?

Mr. LESUEUR. Our original holdings are about 3,000 acres, and 80 percent of the wells, at least, have been drilled in that area. Then, on the extension of that structure, on the islands in the river, it may cover a few hundred acres extra, I suppose, that we have got wells on.

Senator FERGUSON. So you have 30 wells on about thirty-two or thirty-three hundred acres?

Mr. LESUEUR. Around that; yes.

Senator FERGUSON. And is that all the territory you have?

Mr. LESUEUR. Oh, no; we have much more territory than that, but that is where we have since taken out permits from the Canadian Government, you see, under its reservation, and we have been exploring those permits, and in the case of Goose Island and Bear Island, have been drilling.

Mr. HALLEY. Could you today produce at the rate of 3,000 barrels a day?

Mr. LESUEUR. Oh, yes; more.

Mr. HALLEY. You could produce at a larger rate?

Mr. LESUEUR. Yes; we can produce more than 3,000 barrels.

Mr. HALLEY. How high could you go?

Mr. LESUEUR. Well, I would rather you got that from the War Department. You see, it concerns volume of production. But I can say that we can produce substantially more than 3,000 barrels a day.

Mr. HALLEY. As a steady proposition?

Mr. LESUEUR. As a steady proposition, yes; we have a great many undrilled locations, proven locations, you see, that we can drill.

Mr. HALLEY. When did you first learn that this field appeared to be a better producer than you thought it was in May of 1942?

Mr. LESUEUR. Well, we knew that the matter was urgent, and we immediately started gathering personnel from all our different departments in Canada and also some from the States, built up an organization, and I think had the first well drilled about the middle of July 1942, and from that time on, we have driven the work just as hard as we could drive it, as fast as we could get the materials, and so on, and I suppose by the beginning of 1943, we knew that we could produce the amount required.

Mr. HALLEY. Now, I take it that that knowledge came as a surprise?

Mr. LESUEUR. Well, I think we always thought, perhaps, that we could produce it. We didn't know the size of the field or how long it could be sustained. That was the big point—to get sustained production, not merely to get a potential which you could not maintain.

Senator FERGUSON. You don't know that today yet, whether you can sustain it?

Mr. LESUEUR. We feel we can.

Senator FERGUSON. How do you know that?

Mr. LESUEUR. Well, we know that by what we figure as proven reserves.

Senator FERGUSON. All right, Mr. Halley, go ahead.

Mr. HALLEY. In May of 1942, when you wrote this somewhat pessimistic letter, you were trying then to give the War Department the benefit of your honest opinion?

Mr. LeSUEUR. We were trying to give them the benefit of it; certainly not an optimistic view.

Mr. HALLEY. Well, you were being honest, were you not?

Mr. LeSUEUR. We certainly tried to be honest with them.

Mr. HALLEY. You had no motive for understating the production?

Mr. LeSUEUR. Oh, no; we were stating the difficulties.

Mr. HALLEY. You were stating the value of the field, were you?

Mr. LeSUEUR. We were stating the difficulties.

Mr. HALLEY. You had no motive of trying to persuade them not to go into that field, did you?

Mr. LeSUEUR. No; none whatever; except that we felt they should know the picture and the hazards which might exist.

Mr. HALLEY. And in that letter you mentioned that the petroleum was not suitable for the production of aviation gasoline?

Mr. LeSUEUR. No; I don't think we said that.

Mr. BIMEL. I don't think we meant to infer it, because, you see—I think I could possibly clear up that point. This skimming plant wasn't in a position to produce a base stock of a high quality, but it could be used with a codimer and produce satisfactory aviation gasoline up to about 90 gravity, or 90 octane, I mean.

Mr. LeSUEUR. Yes; we were selling about a 90-octane aviation gasoline, 87 to 90.

Senator FERGUSON. Can you make hundred out of this gas? I mean, out of the oil.

Mr. BIMEL. Yes, with alkylation, easily, because it is really a beautiful oil. But we have, Senator, only a skimming operation, a topping operation, at our plant.

Mr. LeSUEUR. Yes; we have only a topping operation at our plant—that is not at Whitehorse, which is a different proposition, but at our plant in Norman we have only a topping operation.

Senator FERGUSON. Could you give us the capacity of your plant at Norman?

Mr. LeSUEUR. The refinery? About 850 barrels a day.

Mr. HALLEY. Now, in your own operations, where did you get what you referred to as the 60 percent of hydro-codimer, to which you added 40 percent of the base stock to make aviation gasoline?

Mr. LeSUEUR. We brought that in.

Mr. HALLEY. You brought that in?

Mr. LeSUEUR. Yes.

Mr. HALLEY. Now, is there any way of producing that from the petroleum at Norman; that is, the hydrocodimer?

Mr. LeSUEUR. Well, I don't think I am sufficient of a technician to tell you that. The only thing I can say is that compared with ordinary crudes, this crude, I think, is superior to most of them, for aviation gasoline.

Mr. HALLEY. Considering that to be a fact, are you in a position to say whether, today, with a modern refinery, assuming such a refinery would be installed, does the hydro-codimer have to be brought in?

Mr. LeSUEUR. I don't think so. I think that this crude is superior—there are very few crudes equal to it for aviation base stock.

Mr. BIMEL. I might add to that, Mr. LeSueur, that it depends on the quantity of 100 octane that you would require. If you wanted to produce more, you would have to bring in hydro-codimer, a blending medium, to bring it up, but you can produce it from this crude if you

have got equipment in your refinery to do it; I mean, this crude will produce the 100 octane up to a certain volume.

Mr. HALLEY. What percentage recovery would you get from this crude, without bringing in any blending stock?

Mr. BIMEL. I don't think we could answer that because we haven't seen any runs on it. We haven't made any runs on it. No doubt, the people who have designed the refinery could supply that information.

Mr. HALLEY. You have no information on the subject?

Mr. BIMEL. No.

Mr. HALLEY. As of the time you were making it, though, you were importing 60 percent of the ingredients?

Mr. BIMEL. Quite true. We had to do it because we had only a skimming plant and we could only make certain volatility and certain octane. It made a base stock, with a certain amount of hydro-codimer added to it. We used it just for our own particular business, our local requirements, and that was the reason for the implementation of that grade. We made a gasoline that could be used in boats and trucks, a motor fuel up to about 60 octane, or 68, but that was just about all you could get out of this crude with skimming. But if you had better, modern equipment, you could produce higher base stocks.

Mr. HALLEY. Well, what kind of a unit would you have to have? Would a thermal cracking unit be sufficient?

Mr. BIMEL. I think so, sometimes.

Mr. HALLEY. Or would you need a Houdrey unit?

Mr. BIMEL. I think a Houdrey unit would do the job, and I think any thermal—I don't think you would get a maximum use of the 100 octane out of the thermal units. However, you may be able to do it. I don't think we have enough information to make a statement on that.

Mr. HALLEY. I see. In any event, you advised the War Department of all of these difficulties in your letter of May 2?

Mr. LeSUEUR. We advised them of the difficulties; yes.

Mr. HALLEY. Now, Mr. Bimel, have you read that letter?

Mr. BIMEL. Yes, sir.

Mr. HALLEY. Does the letter represent or accurately set forth the information you gave at the conference of April 29?

Mr. BIMEL. I would say that it does. I think that this is a record that was drawn, I think, from the advice given by Mr. LeSueur, in order to put our company's position in writing.

Mr. HALLEY. Now, is the letter of May 2 any more pessimistic than you were at the conference?

Mr. BIMEL. I don't think so. I think that our pessimism should be understood.

Mr. HALLEY. You didn't simply go back and write a letter contradicting what you had said?

Mr. BIMEL. No, sir.

Mr. HALLEY. I mean, you wouldn't do a thing like that?

Mr. BIMEL. What's that?

Mr. HALLEY. You wouldn't tell them one thing and then go back and write a letter telling them something else?

Mr. BIMEL. Oh, no, sir! No, sir!

Mr. HALLEY. At the conference, Mr. Bimel, what was the attitude of the people representing the Army when you stated your position as to the hazards of developing the field?

Mr. BIMEL. Well, I think what I could gather at the conference was that they were rather exercised over the supply of petroleum in the Alaska district, and the picture we painted to them and, I think, with the knowledge of General Carter, whom I have known for 30 years in our business and who possibly advised the other gentlemen a little beyond what I was able to tell them—he said, “I can understand Mr. Bimel’s position and how they feel about it, and from the commercial standpoint, possibly they would hesitate to get your investment in a project of this kind. But with the needs as we see them, why, we think that at least the risk is worth while to try this development.”

Senator FERGUSON. Did they say when they had to get this oil over?

Mr. BIMEL. Well, I think we got it——

Mr. LeSUEUR. Haste was needed. They wanted it.

Senator FERGUSON. Well, if they needed it, why didn’t they use your plant over at Norman Wells?

Mr. LeSUEUR. They did.

Mr. BIMEL. At this time, we could have produced aviation gasoline only by mixing about 60 or 70 percent of hydro-codimers with it. I think it was the double haul that would possibly keep them from utilizing the——

Mr. LeSUEUR (interposing). You see, Senator, our wells were producing, oh, perhaps 450 or 500 barrels per day, somewhere around that. Our refinery was processing perhaps 650 barrels only, and it was only a skimming plant. It was quite inadequate for any large, and sizable operation. It was only built and fitted for supplying local needs, which were comparatively small.

Mr. HALLEY. Was there any discussion at the conferences you attended, Mr. Bimel, of the possibility of importing and storing of aviation fuel?

Mr. BIMEL. No, we didn’t go into that.

Mr. HALLEY. Well, did General Robins raise that question at the second conference, the one which he attended?

Mr. BIMEL. I don’t quite understand your question.

Mr. HALLEY. Did General Robins of the Corps of Engineers state that in his opinion a much more satisfactory method of handling the entire proposition would be to import gasoline and storage it up in Alaska, where needed?

Mr. BIMEL. I think that he made some reference to that, but I don’t recall exactly his statement.

Mr. HALLEY. Well, perhaps I can refresh your recollection. Isn’t it a fact that Mr. Wheeler of your office made a memorandum of the conferences, a typewritten memorandum? Let me show you this, marked exhibit B-3 of a group of exhibits here, and see if you have ever seen this copy of the memo by Mr. Wheeler?¹

Mr. BIMEL. Yes, I saw that.

Mr. HALLEY. Now, will you turn to page 4, and will you note, with reference to a meeting with General Robins on the 30th of April, at 2 p. m., that General Robins was said to have read a memorandum of Colonel Graham’s concerning the deliveries contemplated by pipe

¹ See Exhibit No. 1097, appendix, p. 9843.

line, and to have said that 10 times as much could be delivered by barge?

Mr. BIMEL. Yes, I recall that he stated that he thought, in his opinion, they could possibly move by barge an equal amount, or it might be the better way. I don't know that he actually said just how much they could move.

Mr. HALLEY. You note that the memo says 10 times as much the volume.

Mr. BIMEL. Yes, 10 times the volume contemplated by pipe line could be made by barges already available from inland rivers.

Mr. HALLEY. Do you recall that having been said?

Mr. BIMEL. I recall that General Robins made a statement about moving by barge, but I don't recall the 10 times. Now, that is possibly—

Mr. HALLEY. Well, you have seen this memo that you have before you?

Mr. BIMEL. That's right; yes, sir.

Mr. HALLEY. And did you see the memo shortly after it was written?

Mr. BIMEL. Yes, sir.

Mr. HALLEY. And at the time you saw the memo, you read it, I assume?

Mr. BIMEL. Yes, I did.

Mr. HALLEY. And at that time, did it appear to you to be correct and accurate?

Mr. BIMEL. Well, as a matter of fact, I didn't pay a great deal of attention to it, except that this memo was written more for our own guidance; it was more to refresh our own memory, and was not to be used for any other purpose.

Mr. HALLEY. I understand that, but at the time you looked at it, did it appear to you to be a correct memo?

Mr. BIMEL. Yes, it did.

Mr. HALLEY. And an accurate statement of what had happened?

Mr. BIMEL. Yes. I took it to be such.

Mr. HALLEY. Did you have any discussions with General Pyron or with General Carter or with Colonel Graham, concerning the possibility of moving the necessary gasoline stocks by barge or tanker?

Mr. BIMEL. No, sir. No, we weren't concerned with that particular phase of it. The only thing we were actually concerned with was the development of the Norman fields, the drilling of the wells at Norman. That was the only part of the project that we were concerned with.

Mr. HALLEY. Were you there to state your experience?

Mr. BIMEL. Our experience in that field, and the possibility of getting production in that field, showing what our position was there.

Mr. HALLEY. And you stated that?

Mr. BIMEL. Yes, sir.

Mr. HALLEY. To the best of your ability?

Mr. BIMEL. That's right.

Mr. HALLEY. Now, will you state for the record what your experience has been with the Imperial Oil Co., and what ability you personally had to know the possibilities of that Norman field?

Mr. BIMEL. Well, the only thing I can say is that the observance from the records of the performance of the wells indicated to us that these wells could possibly produce up to 500 barrels a day.

Mr. HALLEY. Well, are you a geologist?

Mr. BIMEL. No, sir. I have had 40 years of experience with the oil business, though.

Mr. HALLEY. And you know your company's experience?

Mr. BIMEL. Yes, our company's experience; and I had watched the performance of these wells.

Mr. HALLEY. And you had gotten reports from geologists?

Mr. BIMEL. That's right.

Mr. HALLEY. Which you were thoroughly capable of understanding?

Mr. BIMEL. That I understood, yes.

Mr. HALLEY. And so, when you went down to Washington to tell the Government, in effect, what the possibilities were, you were in a good position to do it?

Mr. BIMEL. I think so. And as far as our knowledge of the field had gone, we didn't have a great deal of knowledge of this particular field, but based on what we did, I think I was in a position to tell them what we knew.

Mr. HALLEY. And they had a good right to rely on your information?

Mr. BIMEL. I think so.

Mr. HALLEY. Were Mr. Wheeler and Mr. Walker also in the same position to give that information?

Mr. BIMEL. Yes, I think Mr. Wheeler was a geologist and gave certain testimony and certain information to the gentlemen at the time.

Mr. HALLEY. And was Mr. Wheeler's information substantially the same as yours?

Mr. BIMEL. I think so. As a matter of fact, he gave the geological information at this meeting.

Mr. HALLEY. You mean that charts and maps were used?

Mr. BIMEL. Yes. He showed the maps we had brought with us and showed them the extent and what knowledge we had at that time of the producing zone.

Mr. HALLEY. Did Mr. Walker give any information?

Mr. BIMEL. I don't think so. I think he was there more as an observer, to help if he could.

Mr. HALLEY. Who, at the meeting, appeared to be the person interested and qualified to understand your discussion and the geological data which you presented?

Mr. BIMEL. I think General Pyron was thoroughly competent of judging.

Mr. HALLEY. His experience has been with the Gulf Oil Co.?

Mr. BIMEL. That's right.

Mr. HALLEY. And he went over the maps?

Mr. BIMEL. He did.

Mr. HALLEY. Well, did he agree with you that the chances of discovering oil were at best only fair?

Mr. BIMEL. The risk that you take in almost any oil company or any venture of this kind. He was able to give to the other gentlemen some information that I think was based on the facts that we had presented to him, and I think that he gave a very clear understanding that there was a risk and that if the risk was worth taking, if there were wells, if there was oil, if there was a field that had been used over a number of years—

Mr. HALLEY (interposing). Well, you were very scrupulous on stating that the mere fact that some wells had been producing meant very

little. As I recall it, you stated that the wells had not been producing continuously and that there was no way of telling whether they would produce continuously, or how they would produce if you drilled additional wells in the vicinity; is that correct?

Mr. BIMEL. That is correct; yes.

Mr. HALLEY. So that very little could be inferred from the mere fact that there were wells producing; is that right?

Mr. LESUEUR. I think our position was that you couldn't for a certainty say that there would be results.

Mr. HALLEY. Well, your letter went beyond that, did it not?

Senator KILGORE. You mean by that that you thought, due to the limited development there, there was no way of telling the total volume or area of the field; is that right?

Mr. LESUEUR. Yes.

Senator KILGORE. Were your wells flowing wells, at that time?

Mr. LESUEUR. Yes; they were.

Senator KILGORE. They had never been completely released to even optimum capacity, had they?

Mr. LESUEUR. I don't think so.

Senator KILGORE. They were used for only a short period during each summer; is that right?

Mr. LESUEUR. That's right.

Senator KILGORE. What formation was it—sandstone or rock?

Mr. LESUEUR. Lime. It is a reef—a coral reef.

Senator KILGORE. Coral formation?

Mr. LESUEUR. Yes.

Senator KILGORE. Well, what was the thickness of the oil-bearing stratum in the actual formation?

Mr. LESUEUR. Well, I think since, we have found it to be several hundred feet.

Senator KILGORE. But there is oil for a depth of several hundred feet in the particular formation?

Mr. LESUEUR. Yes; that's right.

Senator KILGORE. Is it loose or close formation, tight formation?

Mr. LESUEUR. I think it is fairly loose.

Senator KILGORE. Fairly loose?

Mr. LESUEUR. Yes.

Senator KILGORE. What depth was it where you were getting oil at that point?

Mr. LESUEUR. I think somewhere around eleven or twelve hundred feet.

Senator KILGORE. What kind of equipment did you use—turn drill or rotary? I mean on the original development.

Mr. BIMEL. Cable tools in the original.

Senator KILGORE. Just machine?

Mr. BIMEL. That's right.

Senator KILGORE. A machine, or would you build derricks and be equipped for deep stock?

Mr. BIMEL. It was a standard cable-tool rack.

Senator KILGORE. Do you know what make?

Mr. BIMEL. No; I do not; it is very old. It goes back about twenty-odd years, when these tools were used.

General LOWE. May I put in one question here, Mr. Halley? What is your casing-head pressure on those wells? You say they are flowing wells?

Mr. BIMEL. Yes. About 650 pounds.

Senator KILGORE. I want to get in something else. At the time when this discussion took place, how many wells did you have in, the total number of bore holes?

Mr. BIMEL. I think we had four wells in the proven, what we had known—

Senator KILGORE. That were producing. Now, you had drills from dry wells?

Mr. BIMEL. Yes; 2 or 3 miles off, away from there.

Senator KILGORE. What acreage were those producing wells on? Within what acreage were they?

Mr. LESUEUR. Well, they were in our original concessions, which covered about 3,000 acres.

Senator KILGORE. Was that concession from the Canadian Government, or did you have a lease from the Hudson's Bay Co.?

Mr. LESUEUR. No; the lease was from the Canadian Government. The lease was to some private individuals, and we acquired it, 'way back—

Senator KILGORE. I see. How much of that—was the concession of the Hudson Bay Co. up in there, in that area? I am not talking about where you were, but in the surrounding area, where they have this Crown concession.

Mr. LESUEUR. I don't think the Hudson's Bay have any territory up there that we are interested in at all.

Senator KILGORE. I don't mean what you are interested in; I mean the territory surrounding what you are interested in and the territory surrounding the privately owned land. Do they have a complete concession, including minerals, traffic rights, and things of that kind, or is theirs just a trapping concession?

Mr. LESUEUR. I think it is only a trapping right. They don't have a mineral concession up in that area, I believe.

Senator KILGORE. Then the rest of it is Crown land?

Mr. LESUEUR. Yes; Crown lands.

Senator FERGUSON. Who placed the price that you were to get on the oil?

Mr. LESUEUR. That was the subject of discussion; we discussed that.

Senator FERGUSON. What were you selling oil for at Norman Wells?

Mr. LESUEUR. Oh, well, we weren't selling crude. We were using this small refinery and selling products.

Senator FERGUSON. What were you getting for gasoline?

Mr. LESUEUR. Oh, I suppose for a barrel we had been getting about \$6.50.

Senator KILGORE. That is after it was refined?

Mr. LESUEUR. Yes; after it was refined; put through the refinery.

Senator KILGORE. Of course, you had no competition or transportation—

Mr. LESUEUR. Well, it wasn't so much a question of competition: it was costs and different conditions, because our prices were lower than what it would cost to bring oil in, considerably lower.

Senator KILGORE. What kind of refinery did you have there?

Mr. LESUEUR. Just a topping plant.

Senator KILGORE. A topping plant?

Mr. LESUEUR. That's right.

Senator KILGORE. Are you familiar with the American grades of oil in the United States of America?

Mr. LESUEUR. To a certain extent; yes.

Senator KILGORE. What particular field does this compare with? Would you say it compared with Cabin Creek?

Mr. LESUEUR. Well, it is a very good oil. I don't know just what field to compare it within the States.

Senator KILGORE. It is very light oil, isn't it?

Mr. LESUEUR. Yes; about 39 gravity.

Senator KILGORE. Well, that's about the Cabin Creek oil.

Mr. BIMEL. About the east Texas grade.

Senator KILGORE. Well, isn't east Texas a paraffin-base oil?

Mr. BIMEL. Yes. I think it is.

Senator KILGORE. And most of theirs is asphalt base.

Mr. BIMEL. I think all east Texas and northern Louisiana is paraffin base.

Senator KILGORE. I see. Well, that is about the consistency of what we call the Cabin Creek field, which has a high gasoline and kerosene content and not very much lubricant in it. You don't get very much lubricant out of it. Well, pardon me, Mr. Halley, but I wanted to get into just what they had up there.

Mr. HALLEY. Shall I go ahead on that?

Senator KILGORE. No. Now, how close was this to the old airway that was there for a number of years—not the new one that went up past White Horse, but the old one into Fairbanks? How close was the Norman Wells field to that?

Mr. BIMEL. I can't answer that.

Mr. LESUEUR. I don't know that. I know there were airplanes going to Norman and going on up. I don't know anything about that.

Senator KILGORE. You know there were two routes. There was one route that went up through Watson Lake and White Horse and into Fairbanks. That was a later route. Then there was another route, the first route in there, that came up the Mackenzie and swung north from there, and then they hopped over west into Fairbanks. Well, that was near that old route, was it not?

Mr. LESUEUR. Right on it, I think.

Senator KILGORE. You had a field there?

Mr. LESUEUR. Yes.

Senator KILGORE. At Fort Norman?

Mr. LESUEUR. Yes; I think so, Senator.

Senator KILGORE. All right, go ahead, please.

Mr. HALLEY. With reference to your position in May 1942, do you recall, Mr. LeSueur, writing as follows [reading from Exhibit No. 1101]:

As our representatives pointed out, the possible drilling program which they outlined was based on a more or less hazardous assumption, that locations with reasonable prospects of success could be found for 45 wells, but we should emphasize the fact that we have no knowledge of the extent of the pool and no

assurance whatsoever that productive locations for this number of wells could be found—

Is that right?

Mr. LESUEUR. I think that was true at the time.

Mr. HALLEY. That was your position?

Mr. LESUEUR. That was true at the time.

Mr. HALLEY. And was that your position, Mr. Bimel?

Mr. BIMEL. At that time, it was.

Mr. HALLEY. So you would have at that time called the venture hazardous; is that right?

Mr. BIMEL. Well, I think—

Mr. HALLEY. Well, you did call it hazardous, did you not?

Mr. LESUEUR. That was one of the hazards.

Mr. BIMEL. You had to assume that hazard.

Senator KILMORE. I want to ask one other question. When did you first get into Norman Wells, do you remember? Who first went in there?

Mr. LESUEUR. Well, I think we drilled our first well about 1920.

Senator KILGORE. And at that time, you had a 3,000-acre lease from private individuals?

Mr. LESUEUR. Well, now, I think we had, perhaps, a little more. We had a lease, anyway.

Senator KILGORE. It was a relatively small lease?

Mr. LESUEUR. Yes.

Senator KILGORE. Did you have any agreements at that time with the Canadian Government for extension out into Crown lands?

Mr. LESUEUR. No; we just came under the general regulations, Senator.

Senator KILGORE. In other words, if you discovered something, they might go ahead and let somebody else come in and compete with you, on Crown lands?

Mr. LESUEUR. Yes; we were just under general regulations. We had no special agreement.

Senator KILGORE. You were just wildcatting?

Mr. LESUEUR. That's all.

Senator FERGUSON. Well, you don't pay now for the wildcatting. The company gets paid for drilling these wells?

Mr. LESUEUR. We get paid for the wells; yes.

Senator KILGORE. Well, what I was getting at—I am talking about the initial wells. Frankly, 3,000 acres in that area looks to me like a small lease to spend much money on in wildcatting, or even four or five or six thousand. I think, had I gone in there, I would have wanted about a hundred thousand acres before I spent much money up there.

Mr. LESUEUR. We had a considerably larger acreage—I don't know how much—at the time we went in, but I think part of that was surrendered. The eventual holdings which we had in 1940 were about 3,000 acres.

Mr. HALLEY. Now, I had the impression a little while ago that you made the point that while it was necessary to import a large part of the contents of hundred-octane to your Norman refinery, it did not at all follow that it would be necessary to import them to a refinery, some other refinery, which would be located at Whitehorse.

Mr. LESUEUR. That's right.

Mr. HALLEY. I don't understand, though, why you wrote to the Army in this letter of May 2 as follows [reading from Exhibit No. 1101]:

As pointed out, a large volume of hydrocodimer or alkylate blending agent will have to be transported to Whitehorse, if that is to be the place of blending.

Apparently, in 1942, when you wrote this letter, it was your opinion that any refinery in that area would have to import a large part of the contents of the hundred-octane gasoline; is that right?

Mr. LESUEUR. Well, we may have been wrong in that. I suppose it depends on the type of refinery, Mr. Halley.

Mr. HALLEY. Well, would it depend, then, on the type of petroleum available? It would, would it not?

Mr. LESUEUR. This petroleum is all right.

Mr. HALLEY. I see you shaking your head, Mr. Bimel.

Mr. BIMEL. No, sir. I think it is the type of equipment.

Mr. HALLEY. It would depend on the type of refinery, wouldn't it?

Mr. BIMEL. That's right. The type of refinery you would build to process this type of crude.

Mr. HALLEY. Well, why did you write in this letter that a large volume of hydrocodimer or alkylate blending agent would have to be transported to Whitehorse? You see, here it is [indicating letter].

Senator FERGUSON. Why didn't you just say that it depends on the refinery?

Mr. LESUEUR. Well, perhaps that is what we should have said.

Mr. HALLEY. What do you think you should have said? I'm sorry; I didn't get that.

Mr. LESUEUR. I think perhaps it would depend on the type of refinery.

Mr. HALLEY. Well, you knew they were going to put in the best type of refinery they could?

Mr. LESUEUR. We didn't know anything about it.

Mr. HALLEY. That was a fair assumption. You didn't think they would spend all this money and then put in a poor refinery, did you? That would certainly be a poor assumption.

Mr. LESUEUR. Well, we weren't concerned about the refinery.

Senator KILGORE. Let me ask you this question: As a matter of actual fact, you can produce, even with a very good refinery, but a small quantity of high octane unless you use hydrogenation to step up a lot of it; isn't that right? You would have to put a hydrogenation plant in there to step up that gas, even with a good cracking outfit?

Mr. LESUEUR. Yes; that's right.

Mr. BIMEL. You see, there is a limit on how much production you can get.

Senator KILGORE. Yes; you can get a very small quantity out of any oil unless you use hydrogenation or blending with high octane producing or aromatic fluids.

Mr. BIMEL. That's right. You can expand your capacity, that is, your production, by adding hydrocodimer, but unless you put it right into your plant you can produce only so much, and that will give you so much output.

Senator KILGORE. And you had none of that blending liquid available up there; it would have to be imported from elsewhere?

Mr. BIMEL. That's right.

Mr. HALLEY. And that would still be true at Whitehorse, wouldn't it?

Mr. BIMEL. No; not necessarily.

Mr. LESUEUR. It might be, and it might not be.

Mr. BIMEL. I think your statement was based on our own operation. If that same type of refinery was over there, that is what would have to be done on the other end.

Mr. HALLEY. Well, you felt strongly enough on the whole proposition to urge that they abandon the whole project, and instead fly the gasoline necessary in by cargo planes, did you not?

Mr. LESUEUR. No; we didn't suggest it. We asked them to consider it as a possibility.

Mr. HALLEY. Well, accepting your amendment, you felt very strongly about it to suggest that alternative possibility?

Mr. LESUEUR. We thought it might be well worth considering, instead of going ahead at the time.

Senator FERGUSON. At that time did you know what you could sell your oil for?

Mr. LESUEUR. Oh, we were selling it.

Senator FERGUSON. When you wrote that letter?

Mr. LESUEUR. Oh you mean to the Government?

Senator FERGUSON. Yes.

Mr. LESUEUR. No; we hadn't discussed it.

Senator FERGUSON. Did you change your mind later on when you found out you could get a dollar and a quarter a barrel?

Mr. LESUEUR. No; it didn't change our mind, Senator.

Senator KILGORE. Let me ask you another question on that——

Mr. LESUEUR. They had no connection. I can say that.

Senator KILGORE. How far is it to the nearest point of navigation on the Yukon from your Norman Wells fields?

Mr. BIMEL. I think it was about 380 miles.

Senator KILGORE. Three hundred and eighty?

Mr. BIMEL. Something like that.

Senator KILGORE. That is, where it is navigable by steamers and barges?

Mr. BIMEL. That's right; part of the year; yes.

Senator KILGORE. And how far is it to Whitehorse?

Mr. BIMEL. I think it is about 600 miles.

Senator KILGORE. According to the route proposed for flight?

Mr. LESUEUR. Six hundred or six hundred and fifty miles; somewhere in there.

Senator KILGORE. Now, how large a barge can be used at the Yukon at the point which you referred to? Could you use a 5,000-barrel barge?

Mr. BIMEL. I don't know. I am not in a position to tell you, because I have never been up there and never heard it discussed.

Senator KILGORE. Do you know?

Mr. LESUEUR. No, sir; I don't know.

General LOWE. They have about 5 feet of water to Whitehorse. A boat will draw about 5 feet of water.

Mr. HALLEY. In any event, you wrote that the plan of using cargo planes [reading from Exhibit No. 1101]:

would seem to eliminate considerable of the uncertainty as to the availability of the product and the large part of the hazard as to expedition in securing the results desired.

I assume you stand on that statement and that expressed your opinion at the time?

Mr. LESUEUR. In this sense—

Mr. HALLEY. Well, you don't repudiate this letter now, do you?

Mr. LESUEUR. I think the facts are as since proved; yes.

Mr. HALLEY. We are talking about the thing as it looked on May 2, 1942, when you wrote this letter.

Mr. LESUEUR. At that time I think that was probably true. We thought it might be well worth while considering that in coming to their conclusion.

Mr. HALLEY. Well, you said in concluding:

Let me repeat that we see very great difficulties both as to feasibility and as to expedition in the plan proposed.

Was that your honest opinion?

Mr. LESUEUR. That was on account of your climate, your transportation, your short season, and all the difficulties that such an operation presents.

Mr. HALLEY. Well, as a matter of fact, on the question of completion you turned out to be quite right, did you not? Two years have gone by.

Mr. LESUEUR. Well, as far as the developments go, we got results in production much more rapidly than possibly we expected, but as far as transportation goes, we didn't meet all the difficulties we had in mind. But I don't think we appreciated the power that the United States Army could put behind transportation in that portion of the operation.

Mr. HALLEY. Well, even the power of the United States Army would not have produced oil if it weren't there.

Mr. LESUEUR. No; that is quite true, but, I mean, the oil was there.

Mr. HALLEY. And you had no way of knowing whether or not the oil was there?

Mr. LESUEUR. Well, as we stated, we had three wells that were producing. We had a fourth well which had not been brought in yet, but which we were working on.

Senator KILGORE. Did you ever make a daily capacity run on those four wells to see what they would produce?

Mr. LESUEUR. I think we estimated about 450 barrels for the 3.

Senator KILGORE. That would be about 150 barrels each?

Mr. LESUEUR. Well, they would rate one at 200, one at 100—about 450 for the total. And we also stated, I think, that we figured we had reserves of somewhere around two and a half million barrels. That was the situation.

Mr. HALLEY. You didn't state that in your letter, did you?

Mr. LESUEUR. No; but I think that was stated before.

Mr. BIMEL. We stated that prior to this letter, in the original conference.

Senator FERGUSON. What is your opinion now, that you have a couple of million?

Mr. LeSUEUR. We have a major field now.

Mr. HALLEY. Well, let's see; at the time you wrote this letter, you had drilled in the so-called Norman pool, five wells, of which two were dry; is that right?

Mr. LeSUEUR. That's right; whatever is stated there is right.

Mr. HALLEY. And then you had drilled two additional holes in an attempt to extend the field, and they had turned out dry?

Mr. LeSUEUR. That's right.

Mr. HALLEY. And you were pretty pessimistic, were you not?

Mr. LeSUEUR. Those wells apparently were too far away.

Mr. HALLEY. Well, it just hadn't turned out very well, had it?

Mr. LeSUEUR. Up to that time, that is exactly what had happened. Of course, we hadn't pressed for a big drilling program in that area. Since then, we have, and we have got the oil. Now, that was our opinion at this time.

Mr. HALLEY. That is all that we have been trying to find out.

Senator KILGORE. What was the cost per well of those first seven wells that you drilled?

Mr. LeSUEUR. I couldn't tell you, Senator; I don't know.

Senator KILGORE. Were they taken under contract by some drilling company?

Mr. LeSUEUR. No; we drilled them. We have done a lot of exploratory work all through the Mackenzie Basin.

Senator KILGORE. You used this expression: "We have developed a major field there." You mean your explorations have developed a major field, but who has got the field?

Mr. LeSUEUR. The major field is on our original leases.

Mr. BIMEL. It is just an extension of the original leases or wells.

Senator KILGORE. I know, but you don't have leases on that land, do you?

Mr. LeSUEUR. Yes, we have; we have had, since the beginning.

Senator KILGORE. Well, how many acres does that comprise?

Mr. LeSUEUR. About 3,000 acres, and I would say, perhaps, 80 percent of the production is on these leases. Then, there is some which is on an extension of this field on Bear Island and Goose Island, islands off the field in the Mackenzie River.

Senator KILGORE. And you have those under lease?

Mr. LeSUEUR. We have those under permit from the Canadian Government.

Mr. HALLEY. Do you have title to any of the property?

Mr. LeSUEUR. Well, we have them under the regular Canadian Government lease.

Senator KILGORE. And all of the property is actually owned by the Canadian Government?

Mr. LeSUEUR. The surface is owned by the Government, and, of course, the subsoil is owned by the Government, too. They lease it under certain regulations.

Senator FERGUSON. How much more are these wells costing today to drill than when you drilled them?

Mr. LeSUEUR. I really don't now, Senator. There is one thing, of course: We are speeding it up, and I suppose the cost might be more, I don't know. We are speeding it up on a much larger operation, and emergency is one element, so that that might affect the cost. But up

to date, I don't think the expenditure which has been made through the company in these drillings is large; that is, the total.

Mr. HALLEY. Were either of you or any representative of your company consulted concerning the location of the proposed refinery?

Mr. LESUEUR. In Whitehorse?

Mr. HALLEY. No.

Mr. LESUEUR. No; we were not.

Mr. HALLEY. Was that discussed at your meeting, Mr. Bimel?

Mr. BIMEL. Yes; it was mentioned, but it wasn't discussed at any great length.

Mr. HALLEY. Did you express an opinion on it, or did any of your colleagues?

Mr. BIMEL. No; I wasn't in a position to do it; no, sir.

Mr. HALLEY. Do you know what connection Mr. Stefansson, the explorer, had with this project?

Mr. BIMEL. No.

Mr. HALLEY. Did you have any contacts with him?

Mr. LESUEUR. We had no contacts with him down here at all.

Mr. HALLEY. Did you have any with him anywhere?

Mr. LESUEUR. Yes, we had; I had a contact with him once, but it was more on the building of the road. He had ideas on where the Alaska Highway should go. Now, that was what we discussed with him. As to the development of the Norman Wells and this contract, I had no discussion with him.

Mr. HALLEY. Did you have any discussions with him when you considered the development of Norman Wells or as to the availability of Norman oil in the program of the United States?

Mr. LESUEUR. I have no recollection of any discussion with him on that.

Mr. HALLEY. Did this proposition come to you entirely through the matter discussed, that is, through General Carter's approach, or had there been previous discussions of which you knew?

Mr. LESUEUR. No previous discussions that I know of.

Mr. HALLEY. At the time you received word from Mr. Holman that the Army desired to discuss the matter, was it an entirely new proposition to you?

Mr. LESUEUR. Entirely new, yes.

Mr. HALLEY. Did you have any internal discussions of it within your own company?

Mr. LESUEUR. No, never had.

Mr. HALLEY. You in no sense sought out the United States Government in this matter?

Mr. LESUEUR. Oh, no, no. We knew nothing about it, Mr. Halley; in fact, I was away, I guess, when the call came, and Mr. Bimel was there and got it and he came down. That was the first I heard of it.

Mr. HALLEY. You wrote the letter, I presume, so that if the whole thing did turn out to be a flop, nobody could blame you for it; was that your idea?

Mr. LESUEUR. We wanted to point out the hazards, and, as I said in the letter, we were willing to cooperate if they decided to go ahead. We wanted them to know the hazards and we pointed them out.

Mr. HALLEY. You didn't want to be in the position of people who had urged this thing?

Mr. **LESUEUR**. Well, we didn't—we weren't in that position; we had never urged it.

Mr. **HALLEY**. But you wanted that perfectly clear?

Mr. **LESUEUR**. We wanted it clear, yes.

Mr. **HALLEY**. I have no other questions.

Senator **KILGORE**. I have nothing further.

Senator **FERGUSON**. That's all.

(The committee adjourned at 1 o'clock.)

AFTERNOON SESSION

Senator **FERGUSON**. Will you state your full name and your connection with the Army?

General **RUSSELL**. Carl A. Russell, Brigadier General, A. U. S., Deputy Chief, Theater Group, Operations Division, War Department General Staff.

Senator **FERGUSON**. Mr. Halley, you know about what he knows, so you ask him the questions.

Mr. **HALLEY**. Were you present at a conference on the subject of the Canol project—

Senator **FERGUSON** (interposing). You haven't been sworn, have you, General? I am swearing all witnesses. Do you solemnly swear that in the matter now pending before the committee you will tell the truth, the whole truth, and nothing but the truth, so help you God?

General **RUSSELL**. I do, and that holds for my name and position.

TESTIMONY OF BRIG. GEN. CARL A. RUSSELL, ARMY OF THE UNITED STATES, DEPUTY CHIEF, THEATER GROUP, OPERATIONS DIVISION, WAR DEPARTMENT GENERAL STAFF

PLANNING THE PROJECT

Mr. **HALLEY**. Were you present at a conference on April 29, 1942, with reference to the Canol project?

General **RUSSELL**. I was.

Mr. **HALLEY**. Had you had any prior discussion with reference to that project?

General **RUSSELL**. No, sir. That was the first I ever heard of it.

Mr. **HALLEY**. Or of any other oil or petroleum development in Alaska or Canada?

General **RUSSELL**. No, sir; I had not. In fact, I didn't even know it was the Canol project at that time.

Mr. **HALLEY**. Who asked you to come to that particular conference?

General **RUSSELL**. General Streett asked me to attend a conference that afternoon to which he had intended to go, but he was unavoidably called elsewhere, to go as his representative.

Mr. **HALLEY**. The conference I have in mind took place, I believe, at 9 a. m. on April 29.

General **RUSSELL**. I don't recall its having taken place at that hour, although I may be in error. If my memory serves me—I didn't check on any minutes—it was in the afternoon.

Mr. **HALLEY**. Do you remember who was present at the conference you attended?

General RUSSELL. I think the conference in question was called by General Carter.

Mr. HALLEY. Was he chairman?

General RUSSELL. In his office. It was an informal gathering. I imagine, if one could designate a chairman, General Carter seemed to be the host.

Senator FERGUSON. He was it.

Mr. HALLEY. Do you remember the other persons who were present?

General RUSSELL. I think General Pyron was present; General Streett came in either just before the session got under way or immediately thereafter; Colonel Tully, I believe; and Colonel Graham. I don't know whether Generals Robins and Sturdevant were there or not. I don't remember. There were a couple of oilmen in some. I don't know exactly what their connection was, whether Government agency or firm. I imagine they were not Government employees.

Mr. HALLEY. As you understood it, what were you there for?

General RUSSELL. We were invited to go to this conference, as I understood it, to estimate or predict the necessity for distribution of oil along the Alcan Highway in support of air operations via the Northwest Ferry Command, and such air movement, current or potential, either of a ferrying nature or in support of combat operations, as we believed might take place.

Mr. HALLEY. Were you confining your estimates to the Northwest Ferry Command?

General RUSSELL. I said along the Northwest Ferry Command. They would probably go farther.

Mr. HALLEY. Would it apply also to the Alaskan Defense Command? Was the idea to supply that command as well?

General RUSSELL. Insofar as gas and oil were concerned, we were mainly concerned with transit of planes through that area to the Alaskan Defense Command and beyond, let us say.

Mr. HALLEY. Did you have in mind, however, the supply of petroleum products to the Alaskan Defense Command from that area other than the mere fueling of planes going through the Alcan Highway area?

General RUSSELL. I don't recall specifically whether they were figured in in their entirety, but it stands to reason that some portion of them, through parts that were accessible, would have been.

Mr. HALLEY. May I put it this way, General: Did you have in mind, in discussing the requirements, supplying the requirements for actual combat operations in the Alaskan defense area by shipping petroleum products from the Northwest defense area into the Alaskan defense area?

General RUSSELL. Yes. At that time the requirements were estimated. They weren't carefully calculated because, as I might say, this thing came right upon us at a moment, without too detailed a calculation, and we were figuring all possibilities for requirements.

May I say that our job might hinge around two words: Requirements and priorities. What we were trying to do was to give to the people who would subsequently be charged with fulfilling the requirement or supplying it, an idea of the magnitude of the problem that they would be confronted with.

Mr. HALLEY. Were there any minutes of the meeting?

General RUSSELL. Not to my knowledge. Somebody may have been taking them, but, as I say, I was asked to go there for General Streett as his deputy, and he himself arrived at the beginning of the meeting, and I was an innocent bystander. I saw that my presence would add nothing to it and, as a matter of fact, I left shortly after it started, long before it ended.

Mr. HALLEY. Did you make any statements?

General RUSSELL. I did not.

Senator FERGUSON. Did you know the amount of gasoline they needed?

General RUSSELL. No; that was indeterminable at the time in exact amounts.

Senator FERGUSON. Was there any amount at all stated?

General RUSSELL. We foresaw the possible need of large quantities of gasoline of high-octane type for aircraft and also amounts for operation of truck transportation, and also the problem of distribution throughout the area where needed.

Senator FERGUSON. But did you go into the question of moving it by water up the inland passage?

General RUSSELL. I don't recall that that was taken up at that time, but to the best of my recollection it, among all other possibilities, was discussed by this gathering in a—

Senator FERGUSON (interposing). Whom did you have representing the people for the waterways, to see whether or not it could be taken that way?

General RUSSELL. From our standpoint, we had no representation from Op. D. other than the three I have named—General Streett, Colonel Tully, and myself. But, as I say, ours is not the job of finding the ways and means as much as it is the determination of the requirements for their eventual fulfillment.

Senator FERGUSON. Did you ever go into the question of the requirements?

General RUSSELL. I, personally?

Senator FERGUSON. Yes.

General RUSSELL. No, because it was handled by others in Op. D.

Colonel FRIEDLICH. Op. D. is Operations.

Senator FERGUSON. Yes.

Mr. HALLEY. In any event, you went to the meeting, but you didn't say anything.

General RUSSELL. That is right, I didn't, because my boss came in and said it for himself.

Mr. HALLEY. Prior to the meeting had you had any conferences with any of the people there?

General RUSSELL. As a matter of fact, prior to the meeting I didn't know what it was to be about, other than a very brief statement by General Streett that they might want to know something about gasoline requirements in that area.

Mr. HALLEY. You came to a meeting; you sat there for a short while, said nothing, and left before it ended?

General RUSSELL. Exactly.

Mr. HALLEY. Did you hear any more of it after the meeting?

General RUSSELL. Oh, I have heard about this Canol project development off and on.

Mr. HALLEY. Did any of the people who were at the meeting come to see you or talk to you about the project within the next few days?

General RUSSELL. They did not.

Mr. HALLEY. Did you get a copy of a memorandum which Colonel Graham prepared for General Somervell?

General RUSSELL. I did not.

Mr. HALLEY. Could you say what the position of the Operations Division was in the month of April 1942? Did you take the position that large quantities of gasoline would be needed in the Northwest area?

General RUSSELL. Yes; large quantities of gasoline would probably have been needed under the then known conditions.

Mr. HALLEY. How soon would they have been needed?

General RUSSELL. The first increments of them were in use then. I mean we were getting some gasoline up there at the time, but it was a question of stockage of reserves.

Mr. HALLEY. Let's put it this way: Did you have in mind gasoline in the year 1942 or gasoline in the year 1944?

General RUSSELL. We hoped to get it there in '42, at least a portion of it.

Senator FERGUSON. You didn't anticipate your use in '44?

General RUSSELL. Well, there was no telling how long we would have to use it, Senator.

Senator FERGUSON. But did you anticipate your use in '44?

General RUSSELL. One might say, hoping against hope that we wouldn't have to use it, because it was problematical at the time where we would get it from.

Senator FERGUSON. Wouldn't you have thought that the Navy would know more about the situation than the Army—

General RUSSELL (interposing). I see no—

Senator FERGUSON. As to whether or not you would be fighting battles in the Northwest on land? Wasn't it the Navy's duty to keep them away from Alaska, to keep the Japs away from Alaska?

General RUSSELL. That is a presumption, but they also got into Pearl Harbor.

Senator FERGUSON. Are we going to blame both the Army and the Navy for letting them in Pearl Harbor, or just the Navy?

General RUSSELL. I wouldn't care either to fix blame or to make accusations. I think we can blame 130,000,000 people.

Mr. HALLEY. I have nothing else. It appears that the general has nothing to add.

Senator FERGUSON. Your judgment was not considered here? You didn't make any judgment?

General RUSSELL. No, sir. I wondered, as a matter of fact, why I was being called up here.

Senator FERGUSON. You were present at the meeting—

General RUSSELL. Yes, sir.

Senator FERGUSON. And we hadn't any way of telling what you might know.

Mr. HALLEY. There are no minutes that we have seen, and therefore the only way we can find out what happened and be sure we are right is to get everybody who was there and ask them what they said.

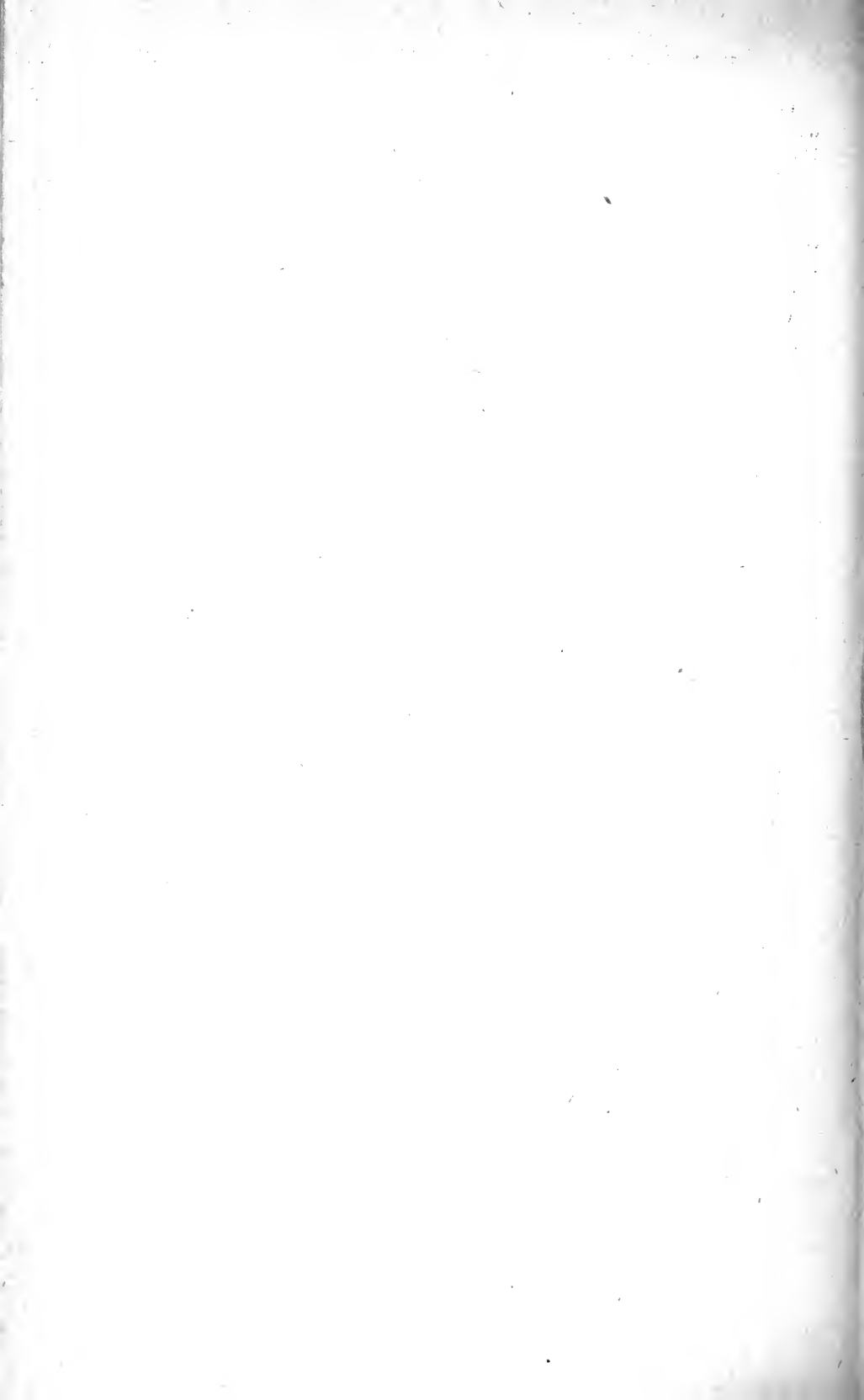
General RUSSELL. I was there, but I didn't have to participate, because the meeting would have gone on just as it did, without my being there; nor did I stay, because other duties elsewhere demanded somebody's attention, so I left.

Mr. HALLEY. You made no statements whatsoever?

General RUSSELL. I made no statements, formed no opinions, and didn't remain long enough for opinions to crystallize, apparently, in the minds of anybody.

Senator FERGUSON. That is all, then.

(The committee adjourned at 4:57 p. m.)



INVESTIGATION OF NATIONAL DEFENSE PROGRAM

WEDNESDAY, NOVEMBER 17, 1943

UNITED STATES SENATE,
SUBCOMMITTEE OF THE SPECIAL COMMITTEE
INVESTIGATING THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

EXECUTIVE SESSION ¹

The subcommittee met at 10:04 a. m. in room 455 Senate Office Building, Washington, D. C., Senator Homer Ferguson, presiding.

Present: Senators Homer Ferguson and Harley M. Kilgore.

Present also: Rudolph Halley, executive assistant to the chief counsel, and H. J. Robinson, investigator.

Senator FERGUSON. Is the General going to testify?

Mr. HALLEY. Yes. General Robins.

Senator FERGUSON. Will you raise your right hand? You do solemnly swear that in the matter now pending before the committee, you will tell the truth, the whole truth, and nothing but the truth, so help you God?

General ROBINS. I do.

TESTIMONY OF MAJ. GEN. T. M. ROBINS, DEPUTY CHIEF OF ENGINEERS, UNITED STATES ARMY

Senator FERGUSON. All right, you may proceed.

Mr. HALLEY. General Robins, were you consulted in the month of April 1942 with reference to the project which is now known as the Canol project?

Senator FERGUSON. The Canadian oil? Do you know it under its other name?

Colonel FRIEDLICH. He knows it.

Senator FERGUSON. He was hesitating.

General ROBINS. Only informally.

Mr. HALLEY. At the time, as now, you were a general in the Corps of Engineers; is that right?

General ROBINS. That is right; in the office of the Chief of Engineers at the time.

Mr. HALLEY. Who consulted you, General?

General ROBINS. You would hardly call it a consultation. As I recall, there was a conference on the Alaskan road over in General Carter's office, and in connection with that there was a very informal discussion of this oil project.

¹ Publication authorized by the chairman, January 15, 1944.

Mr. HALLEY. Do you remember when the conference took place that you have in mind?

General ROBINS. Who was at the conference?

Mr. HALLEY. When it took place.

General ROBINS. When? My recollection is that it was a week or 10 days, or something like that, before we got the directive on the project. I think the directive came over on the 29th or 30th of April.

Mr. HALLEY. Who was present at the conference you have in mind?

General ROBINS. I don't recall all the people who were there. General Carter and Dean Graham and several officers from the Operations Division of the General Staff, and some representatives of the Pan American Airlines.

Mr. HALLEY. Could we get the substance of what took place at the conference?

General ROBINS. I don't remember who brought it up, but I think it was Dean Graham. After we had finished our discussions on the highway, which had nothing to do with the oil proposition, this proposition was brought up of developing this oil in Norman Wells and getting it over to Whitehorse by the pipe line.

Senator FERGUSON. You mean, General, the meeting was really for the highway?

General ROBINS. Yes, sir; and it was more an informative proposition as far as I was concerned.

Senator FERGUSON. Who was informing you? Who was giving you the information?

General ROBINS. I think that Dean Graham explained.

Senator FERGUSON. Oh, he was explaining.

General ROBINS. He was describing or just talking about this proposition, but I was not asked or no one was asked for any official opinion or anything else on it at that time.

Senator FERGUSON. You didn't have much knowledge on it, then, when you sat there.

General ROBINS. No. I had heard of it before.

Senator FERGUSON. Yes; but I mean you had no particular knowledge so that you could form a judgment.

General ROBINS. No. All that was talked of was the general proposition.

Senator FERGUSON. All right, go ahead.

Mr. HALLEY. Were you asked for any advice in your capacity as an engineer?

General ROBINS. No.

Mr. HALLEY. Was there a subsequent conference in which Canol was discussed which you attended?

General ROBINS. No, not until we had received the directive for the project.

Mr. HALLEY. On the day after the directive did you have a meeting with General Pyron and representatives of the Imperial Oil Co., which, as you know, is a subsidiary of Standard Oil of New Jersey, their representatives being Mr. Bimel and Mr. Walker and Mr. Wheeler?

General ROBINS. Yes.

Mr. HALLEY. Would you say how you happened to attend such a conference?

General ROBINS. At that time the directive had been received, and they were sent over there. I was told that they would report to me in the morning, and we would get to work on getting the project started. This conference was the first move.

Mr. HALLEY. I see. In other words, the directive was handed to you, as the engineer who would put it into effect.

General ROBINS. That is right.

Mr. HALLEY. Up to this point you had not been consulted on the problems involved at all?

General ROBINS. No, not officially.

Mr. HALLEY. Had anyone in the Engineer Corps been consulted, to your knowledge?

General ROBINS. Not to my knowledge.

Mr. HALLEY. After that conference, the Imperial Oil people made a memorandum of the discussion, and their memorandum states [reading from Exhibit No. 1097]:

General Robins, after reading the memorandum by Colonel Graham, commented that ten times the volume of deliveries contemplated by pipe line could be made by barges already available from inland United States rivers, and at one-tenth the cost and effort, but added that he was prepared to do his best to carry out the orders issued.

Would you comment on that note?

General ROBINS. Just to this extent: It was a very obvious remark, and what led up to it was that the oil companies were very reluctant to go into this thing, and they were talking along that line. I was just trying to impress on them that, though that might be the case, we had a job to do and, whether they liked it or not, we were going to do it.

Mr. HALLEY. However, nobody had consulted you officially concerning the alternative method before the job was given to you; is that right?

General ROBINS. That is right.

Mr. HALLEY. I have no other questions.

Mr. ROBINSON. Will you fix the date of that conference?

Mr. HALLEY. The memorandum states the conference as having taken place on April 30 from 2 to 3 p. m. Does that conform with your recollection? That would be the day after the directive.

General ROBINS. That is probably correct, as I recollect it.

Senator FERGUSON. He thinks it is on the 29th, and he received it on the 30th.

Mr. HALLEY. That is your recollection?

General ROBINS. Yes, that is my recollection. In any event, I received it the day after the conference.

Mr. HALLEY. And the conference with the Standard Oil people took place, then, on the 30th; is that right?

General ROBINS. I think that is correct.

Senator FERGUSON. General, as I understand it, then, this directive was not on your order; you didn't make the directive.

General ROBINS. No, sir. The directive came from the Commanding General of the A. S. F., through the Chief of Engineers.

Senator FERGUSON. The directive couldn't be considered your judgment.

General ROBINS. No, sir.

Senator FERGUSON. Did you have anything to do with issuing it? I mean did you advise that it be issued?

General ROBINS. No, sir.

Mr. HALLEY. You were not consulted between this conference that took place on or about the 21st and the time the directive was issued; is that right?

General ROBINS. No.

Mr. HALLEY. And no other member of the Engineer Corps was so consulted, to your knowledge?

General ROBINS. So far as I know.

Senator FERGUSON. I think that is all, then. Thank you, General, for coming over.

(The committee adjourned at 10:14 a. m.)

INVESTIGATION OF NATIONAL DEFENSE PROGRAM

FRIDAY, NOVEMBER 19, 1943

UNITED STATES SENATE,
SUBCOMMITTEE OF THE SPECIAL COMMITTEE
INVESTIGATING THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

EXECUTIVE SESSION ¹

The subcommittee met at 2:45 p. m., in room 357, Senate Office Building, Washington, D. C., Senator Harley M. Kilgore presiding.

Present: Senators Harley M. Kilgore and Homer Ferguson.

Present also: Rudolph Halley, executive assistant to the chief counsel; H. J. Robinson, investigator.

Present also, representing the War Department: Maj. Gen. St. Clair Streett, commanding general, Second Air Force; Brig. Gen. W. B. Pyron, Army-Navy Petroleum Board; Col. B. C. Snow, Legislative Liaison Division, Office of Chief of Staff; Lt. Herbert A. Friedlich, Office of Under Secretary of War.

Colonel FRIEDLICH. Mr. Chairman, I don't know what General Pyron will have to say particularly that might have any security reason for not repeating it. I do think that General Streett, in telling you the background of this thing—and he has no prepared statement—may give you some information that will be very valuable to you, but which we do not want made public, and I would like to put in all of the testimony that comes in today on the same basis that we did at the first hearing, that it will all be treated as confidential, unless the committee want certain matters made public, and then they will put it up to us so we can put it through the regular channels to see if it will be proper to clear it. I think the committee will get more out of this hearing on that basis.

Senator KILGORE. There is no way we can subdivide it as we go along, as to what is and what is not, is there? Frankly, we are having some hearings Monday morning and we might want to use some of this. Frankly, we are not interested, except as a background, in strategy.

Colonel FRIEDLICH. We won't get into strategy. It will be background.

Senator KILGORE. We are interested in oil and the strategic background of this plant. We are interested in the whole idea, and as to its effects, and we don't want to disclose any information to the enemy, naturally. Perhaps there is some way that we can hurry that up so we could intelligently ask some questions next week when we are going to have hearings based on certain portions of this testimony.

¹ Publication authorized by the chairman, January 15, 1944.

Colonel FRIEDLICH. We will tell you yes or no very quickly.

Senator KILGORE. Do you think you can by Monday?

Colonel FRIEDLICH. Yes, sir; if Mr. Halley will let us know just what he wants, we will clear it with him Monday.

Mr. HALLEY. We have already cleared a memorandum on it.

Colonel FRIEDLICH. We have cleared it. I am not trying to affect that one. It is what is going in today.

Mr. HALLEY. That will be easy enough to handle. I do suggest, though, that you have a proper person at the open hearings, and in such good time that we can make arrangements to have in a place where he can, by raising his hand, stop the proceedings at least in time to save our divulging anything.

Colonel FRIEDLICH. I think you have made that suggestion, and it will be complied with.

Senator KILGORE. Will the witnesses be sworn? Do you swear that the evidence you will give in the matter now on hearing will be the truth, the whole truth, and nothing but the truth, so help you God?

General STREETT and General PYRON (in unison). I do.

TESTIMONY OF MAJ. GEN. ST. CLAIR STREETT, COMMANDING GENERAL, SECOND AIR FORCE

Mr. HALLEY. General, were you in a conference on April 29, 1942, with reference to the now called Canol project?

General STREETT. I was at a conference. Exactly what date it was, I don't remember, but I would say it was in the spring.

Mr. HALLEY. Can you place it in reference to the time General Somervell issued a directive to the engineers to go ahead and build this Canol project?

General STREETT. As a matter of fact, I am not familiar with that directive.

Mr. HALLEY. You were at one such conference?

General STREETT. I was at such a conference.

Mr. HALLEY. Were you at more than one?

General STREETT. No.

Senator FERGUSON. Can you tell us who was present at that meeting?

General STREETT. I think it was in General Carter's office. We were invited there. There was Colonel Graham, there were two men from Imperial Oil Co.

Senator FERGUSON. They were civilians?

General STREETT. Yes. General Russell (then Colonel Russell) was there, and General Pyron was there, and there was a gentleman from the B. E. W., I believe, Mr. Smith.

Senator KILGORE. Do you remember who these two men from Imperial Oil Co. were?

General STREETT. No; I don't remember their names.

Mr. HALLEY. Prior to the conference you have in mind, did you have any discussions with anybody about Canol?

General STREETT. No.

Mr. HALLEY. And did it come to your attention in any way, form, or manner prior to that?

General STREETT. I went up to General Carter's office to discuss oil or fuel.

Mr. HALLEY. At this particular conference?

General STREETT. This was the day before, I believe, that I was asked to be up there in the morning, in his office.

Mr. HALLEY. You were asked, you mean, over the telephone?

General STREETT. Yes.

Mr. HALLEY. And then you had no further discussion until the conference?

General STREETT. No further discussion.

Mr. HALLEY. At the conference, were you asked for any opinion or advice or information?

General STREETT. I was asked if there was a requirement; if I could see the necessity for a requirement for high-test gasoline that could be procured within a reasonable distance of the highway or the air line which was going in there, and I stated that there was certainly a requirement for it if we could get it.

Mr. HALLEY. You would need high-test gasoline, in any event, for such planes as flew over the highway.

General STREETT. That is right; that flew up that route in Alaska then.

Mr. HALLEY. Were you asked your opinion as to the most feasible means of getting that gasoline?

General STREETT. No. As a matter of fact, I was asked if there was such a requirement. As a matter of fact, not being an engineer, I didn't pretend to go into the—

Senator KILGORE (interposing). Did you furnish them on that occasion the estimated daily requirements of high-octane gas, motor fuel, and various others?

General STREETT. No; I didn't.

Senator KILGORE. Was there such a requirement in existence at that time; such an estimate in existence at that time—let's put it that way.

General STREETT. No; there wasn't an estimate based on exactly the amount of high-octane gas that would be needed. There was a requirement; there was an increasing requirement for high-octane gas, the use of high-octane gas to ferry planes over this highway.

Senator KILGORE. You mean, really, there was an increasing need.

General STREETT. An increasing need; that is right.

Senator KILGORE. Not a requirement.

Mr. HALLEY. Let's see. You were asked about a requirement for the airfields along the highway; is that right?

General STREETT. Not specifically.

Mr. HALLEY. Just in that general direction.

Senator FERGUSON. If they would need gas?

General STREETT. If high-octane gas would be needed—I mean if locally obtainable high-octane gas—

Senator FERGUSON (interposing). Did it make any difference to you?

Senator KILGORE. Let him finish that. If locally obtainable high-octane gas—

General STREETT. Would be of value to us in the operation of that highway, that air line.

Senator KILGORE. Was there any discussion at that time as to the quantity of gas that would be available along the highway? Locally obtainable, I should say.

General STREETT. As I remember, there was an estimate that there was a possibility that there would be locally obtainable about 3,000 barrels.

Senator FERGUSON. Of gas?

General STREETT. Of oil.

Senator KILGORE. Did they translate that to you in terms of high-octane gasoline?

General STREETT. As a matter of fact, I think the figure was about 450 to 500 barrels that would be obtainable from this 3,000 barrels of oil that was available at Norman Wells.

Mr. HALLEY. Wait a minute, General; that wasn't known at that time, was it?

General STREETT. What is that?

Mr. HALLEY. The amount of high-octane gas that would be obtainable. If so, you are the only one at the conference who so far has been able to tell us that was the estimate at that time.

General STREETT. As a matter of fact, it was estimated that out of that much crude we would possibly get something like 500 gallons.

Senator FERGUSON. Where did you get the 3,000-barrel idea?

General STREETT. It was brought up at the conference; as I understand, there was a possibility that we could get about 3,000 barrels out of it. That is as I remember it. That has been about a year and a half ago, you see.

Senator FERGUSON. What was the requirement for high-test gas on the airfield route?

General STREETT. We had in that area at that time about 75 airplanes in Alaska, as I remember.

Senator FERGUSON. Where were they in Alaska?

General STREETT. At Fairbanks, Anchorage, and we had a field at Cold Harbor and one at Kodiak.

Senator FERGUSON. But how were you going to get the gas from Whitehorse to Kodiak?

General STREETT. As a matter of fact, the ships were operating over this route.

Senator FERGUSON. Sure, the ships were getting the gas there.

General STREETT. Over the route.

Senator KILGORE. You mean the planes?

General STREETT. The planes that were actually operating over that route.

Senator KILGORE. Yes; but were they operating in such a way that gasoline at Whitehorse, for instance, would also be available for reuse at Kodiak and Cold Harbor?

General STREETT. No; unless it could be moved in there.

Senator KILGORE. And how was it planned to move it in?

General STREETT. As a matter of fact, you could move it in in the summertime.

Senator KILGORE. How?

General STREETT. Down the Yukon; if you could crack it, if you could get the gas, you could move it down the Yukon to Fairbanks and then possibly down over the railroad in that area to Anchorage.

Senator KILGORE. How big a barge could you take down the Yukon from Whitehorse to Anchorage?

General STREETT. I don't know.

Mr. HALLEY. The Yukon is nowhere near.

General STREETT. The Lewes is, and it goes into Lake Laberge and down into the Yukon.

Senator KILGORE. I understand you have a 3-foot draft up there in the summertime.

General STREETT. I don't know.

Senator KILGORE. The idea was to barge down the Yukon and run across the Bering Sea to Kodiak and Cold Harbor; was that the idea? And you couldn't take barges across the Bering in the summertime.

General STREETT. As a matter of fact, that proposition wasn't put up at all.

Senator FERGUSON. What I am trying to get at is how you are going to get the gas out of Whitehorse. Was Whitehorse mentioned?

General STREETT. Whitehorse was mentioned as a possible site for a cracking plant.

Senator FERGUSON. Had you any idea as to when you needed the gas, right then or a year from then or 2 years?

General STREETT. We were very anxious to get gas into Alaska at that particular time.

Senator KILGORE. At that time?

General STREETT. Yes.

Senator FERGUSON. You didn't have a plant at Whitehorse. It would take months or years to build a plant at Whitehorse, because you can't get material into Whitehorse.

General STREETT. As a matter of fact, that was the problem that—

Senator FERGUSON. That wasn't your problem?

General STREETT. It wasn't my problem; no, sir. I was asked to comment upon the necessity for getting gas into that area, and whether or not a local supply of gas in that area would be of benefit.

Senator KILGORE. General, now up to that time, and up to the present time, how are you getting gas into that area?

General STREETT. Shipping it in by tanker.

Senator KILGORE. By tanker to where?

General STREETT. It goes into Seward.

Senator KILGORE. And Skagway?

General STREETT. Skagway, of course, is on the inside passage, but you see our operations are out of Anchorage, Kodiak, and that gas is being delivered by tanker into those spots.

Senator KILGORE. And has been all the way through?

General STREETT. Yes, sir; in fact, out on the Aleutians the same way.

Senator FERGUSON. When did it become safe, in your opinion, to move gas by tanker out there to Kodiak and Cold Bay?

General STREETT. As a matter of fact, we have been moving it by tanker all the time.

Senator FERGUSON. Yes. You were never interfered with in that movement.

General STREETT. No, we weren't; but we very seriously contemplated the very grave danger.

Senator FERGUSON. That is what I am getting at. When did the danger leave?

General STREETT. I don't think the danger has left yet, as far as that is concerned, to certain isolated shipments.

Senator FERGUSON. Anything is possible.

General STREETT. The real danger probably diminished after Kiska, when the Japanese could no longer operate submarines directly in that area against our shipping lines.

Senator KILGORE. General, wasn't the principal danger north of Skagway? The inland passage was relatively safe, wasn't it?

General STREETT. You have got a pretty wide range of water in Queen Charlotte Sound, and Hecate Strait, you see, is pretty open in there.

Senator KILGORE. How many passages are there into that inland waterway through which you could safely navigate a submarine from the ocean?

General STREETT. I couldn't answer that. I would say quite a number of them. I don't know, three or four, possibly. I don't necessarily know the hydrography of that particular area.

Senator KILGORE. What would have been the cost of installation of antisubmarine nets in those channels?

General STREETT. It would have been pretty high. They are pretty deep.

Senator FERGUSON. Did you consult the Navy?

General STREETT. I didn't. You see, I am speaking as an individual.

Senator KILGORE. I know you are. Let's go ahead, then.

Mr. HALLEY. I would like to go back, if I may, to this conference. As I understand it, with no previous knowledge of the subject matter at all, you were invited to this conference; is that right?

General STREETT. Yes.

Mr. HALLEY. And you were asked whether the air forces were going to require aviation gasoline in the vicinity of the Alaska Highway, is that correct; or was it specifically that you were asked whether you wanted locally made aviation gasoline?

General STREETT. In other words, may I state it this way? As I remember it, I was asked if it would be advantageous, let us say, to have locally obtainable high-octane gas along that highway, along that air route.

Mr. HALLEY. Did you answer that with a categorical "yes"?

General STREETT. No; I couldn't. As a matter of fact, I don't remember exactly—there was no direct question asked, you see.

Mr. HALLEY. What is troubling me is this. There seemed to be two questions: First, do you need aviation gasoline? And of course they didn't have to take 10 minutes or even 10 seconds of your time to know that. They needed aviation gasoline.

General STREETT. Surely; we had ships there.

Mr. HALLEY. The second question would seem to be, as you put it, Should the source of that gasoline be local?

General STREETT. Would it be an advantage to have that locally available?

Senator FERGUSON. An advantage over something else?

General STREETT. You might say an advantage over a risk.

Senator KILGORE. An advantage over the shipment situation.

General STREETT. The situation of getting ships up there—was it dependable? Could we depend, or did we believe the situation in the Pacific—I am just phrasing this from the standpoint of the way I conceive the proposal.

Mr. HALLEY. Was that the question to you? I am trying to find out what you personally, in your official capacity, of course, contributed to

that conference, you see. I am not trying to find out what other people contributed at this point, but what you contributed, you see. You told them you would need aviation gasoline, but I assume they knew that and they didn't need you for that.

General STREETT. They knew that.

Mr. HALLEY. Secondly, on whether or not a local source was needed, were you the person who was consulted on that?

General STREETT. I was merely in there as a witness and possibly to be asked my opinion, in the event anybody saw fit to ask my opinion.

Mr. HALLEY. You were just a few minutes ago asked your opinion on shipping possibilities, and I think you indicated that was a naval question.

General STREETT. No, sir.

Colonel FRIEDLICH. He hasn't said that.

Senator FERGUSON. That is a Navy question, isn't it?

General STREETT. It certainly is.

Mr. HALLEY. The question of whether submarines can operate—isn't that a naval question?

General STREETT. It is a naval question, very definitely.

Mr. HALLEY. Were you the person who was called to that conference; did you think you were called to tell them whether or not gasoline could be shipped to Alaska?

General STREETT. No.

Colonel FRIEDLICH. Would you put in the record at this time, Mr. Chairman, what General Streett's position in the War Department was in April of 1942?

Senator KILGORE. Yes.

General STREETT. I happened to be the Chief of the Theater Group of the Operations Division of the War Department General Staff.

Mr. HALLEY. With reference to the question of whether a local source would be desirable, isn't that another question to which the answer is obviously yes, but which requires a great deal of consideration in terms of alternatives and cost of a local source in terms of materials and manpower?

General STREETT. That is correct.

Mr. HALLEY. Obviously, if it were something you could get by wishing for it, it is better to have a local source than not to, wouldn't that be true?

General STREETT. That is correct.

Mr. HALLEY. Were you asked or did you discuss the problems involved in getting a local source, and the alternatives?

General STREETT. The problems involved in getting a local source were discussed, but—

Senator FERGUSON (interposing). Was your advice sought on it?

General STREETT. No.

Senator KILGORE. May I ask you a question at that point, General? I think it should go in, in fairness to you, and I am trying to put myself in your position. Were you advised before going to the meeting as to just what was going to be taken up, in sufficient time for you to investigate and analyze the situation, and shall we say determine what your mission was at that meeting?

General STREETT. No; I wasn't. This was an informal meeting, as I understood it.

Senator KILGORE. In other words, you were not given an opportunity to collect the necessary data on volume used, requirements, current conditions as compared to future potentialities, or anything?

General STREETT. No.

Senator KILGORE. You were just called into the meeting because of your official position on the General Staff at that time?

General STREETT. That is right, sir.

Senator KILGORE. And because that was classed a theater of operation?

General STREETT. It was at that time, as a part of the Western Defense Command.

Senator KILGORE. In other words, in the vernacular we sometimes use, you were asked in there to talk off the cuff without an opportunity to have figures available?

General STREETT. Yes, sir.

Senator KILGORE. Go ahead, Mr. Halley.

Mr. HALLEY. Did you at anytime state what the Air Force requirements would be in that area?

General STREETT. No; I didn't.

Mr. HALLEY. Did you have any data from which you could have stated it?

General STREETT. Not specific data; no.

Mr. HALLEY. Were you discussing at that time, and in that conference, requirements in the Alaskan field, or simply in the northwest field over the highway?

General STREETT. They are inseparably tied together.

Mr. HALLEY. Were you asked your opinion with reference to a local source which would be available for the entire Alaskan theater?

General STREETT. No. As a matter of fact, it was a limited source of high-octane gasoline.

Mr. HALLEY. For use in what theater?

General STREETT. For use along the highway.

Senator FERGUSON. The highway wasn't there, though.

General STREETT. The highway had been approved and was being built.

Senator FERGUSON. What were the airfields to be used for?

General STREETT. The airfields were to be used for the ferrying of airplanes—airplanes of short range—into Alaska proper, and Fairbanks was the terminal of that route.

Senator FERGUSON. But you were also building large fields out at Anitka and Juneau.

General STREETT. You see, it was all right for the heavies and the long-range ships to go out that way, provided the weather was good, and as a matter of fact, Annette Island, which is south of Ketchikan, and Juneau were usable.

Senator FERGUSON. At that time.

General STREETT. At that time, but that line was put in there before we were in the war, and we couldn't use those Canadian bases until after we entered the war.

Senator KILGORE. You mean the other bases, like Watson Lake and Whitehorse. Now Annette was usable by us; that was ours.

General STREETT. We developed Annette before we got into the war.

Senator KILGORE. And Anchorage, of course, was ours.

General STREETT. Anchorage was ours, and Juneau, and Yakutat, and Cordova. That was the outside route.

Senator FERGUSON. But you had airfields there in the spring of '42.

General STREETT. Yes.

Senator FERGUSON. And were using them.

General STREETT. Yes.

Senator FERGUSON. And you were shipping the gas up by tanker?

General STREETT. That is correct, in the spring of '42.

Senator FERGUSON. Yes.

General STREETT. As a matter of fact, that was a carry-over, because we were then very seriously considering—as a matter of fact, we could then get back behind the ranges. We sent up some B-17's and P-40's in the year of 1941 and lost 50 percent of them.

Senator FERGUSON. Where were you sending them in '41?

General STREETT. They were going up to Alaska.

Senator FERGUSON. That was after Pearl Harbor?

General STREETT. No, sir.

Senator KILGORE. The spring of '41. General, could I ask you a question there? The statement we have had on this refinery is that the estimated daily production of high octane gasoline was 450 barrels a day, based on line flow and usage of the refinery. That would be less than 20,000 gallons. Now, if worst came to worst and you were interdicted from the inland passage on out to the islands and you were defending the situation, with the Japs firmly established, shall we say, on Kodiak and places in there, what assistance would that 20,000 gallons be? You were going to have to transport the major portion of your gasoline up there, weren't you?

General STREETT. Yes, you would.

Senator KILGORE. You couldn't do much fighting on 20,000 gallons.

General STREETT. It would help a lot.

Senator KILGORE. It would help, but you couldn't maintain a scrap.

General STREETT. Not with large forces.

Senator KILGORE. Had they come in, you would have had to put large forces in there.

General STREETT. We had to put in what we could. As a matter of fact, if they came and caught us without anything, we were going to have to defend with air.

Senator KILGORE. That was the purpose of the whole program, to be able to defend with air, if necessary, from positions east of the mountains.

General STREETT. That is right.

Senator KILGORE. And any bombing of any extensive character up there would have taken a whale of a lot more gas than 20,000 gallons a day.

General STREETT. Twenty thousand gallons a day—a B-17 carries about 2,000 gallons on a mission. That is 10 ships. Ten airplanes up there then were a hell of a good show.

Senator FERGUSON. But you weren't going to get the gas then.

General STREETT. Yes, but we didn't know when—gentlemen, do you realize what the position of the United States was at that time?

Senator KILGORE. Oh, yes.

General STREETT. It was one of the most precarious positions the United States has ever been in.

Senator FERGUSON. Well—

General STREETT. I was in there at that time.

Colonel FRIEDLICH. Will you bear with the General? If he could get this in, I think it would be very good.

General STREETT. I would like to give you this because it is a thing that possibly influenced my opinion at that particular time more than anything else. The Japs were assembling their forces in Truk and the Palaus. I don't think anybody knew exactly at that time, except the War and Navy Departments, what our losses at Pearl Harbor had been.

Senator FERGUSON. The Army could find that out. That wasn't such a secret that you couldn't find it out.

General STREETT. We had it; we knew it, and that is one of the things that bears on it.

Senator FERGUSON. I don't think the public has ever found out, even today.

General STREETT. We knew what the situation was. We knew and had this information that the Japs were massing an organization in Truk and in the Palaus to move down for the further conquest of Bougainville and the Solomons. We had one division then in New Caledonia, two divisions on the sea, going down to Australia. We had, with the Australian squadron, seven heavy cruisers, one light cruiser, two carriers, in the South Pacific. The Japs had three or four battleships, three carriers, I don't know how many light and heavy cruisers, and a lot of destroyers, and they were coming south. We didn't know—we had these people astride the ocean there. The Japs had things pretty well their own way. Things were going very, very poorly; there wasn't a good thing to be said about the situation at all.

It looked as though Alaska was next; in fact, we figured it would be, and if Alaska was next and the Japanese had control of the seas, we didn't see how we could move much of anything into Alaska, and if the Japs actually got on the Alaskan mainland, our Northwest was easily reached, and we weren't painting a rosy picture, and the possibility of having any commodity that would allow us to fight these birds off up there was something that we would welcome.

Mr. HALLEY. Is that the line of reasoning you used at the conference?

General STREETT. Yes.

Senator FERGUSON. Did you tell them that?

General STREETT. I don't remember whether I told them that or not.

Mr. HALLEY. As a result of that line of reasoning, assuming it was your own, internally, did you then recommend that this Canol project be carried forward?

General STREETT. No; I didn't recommend it.

Mr. HALLEY. Was your opinion asked?

General STREETT. My opinion was asked, and I believe I said if we could get high-octane gas up there locally, it would be a godsend.

Mr. HALLEY. Did you ask what the cost would be in terms of material?

General STREETT. No, sir.

Mr. HALLEY. Did you qualify your opinion by saying it would be a godsend if it didn't cost too much?

General STREETT. No; I didn't do that.

Senator KILGORE. Was the question of time necessary for construction to make the supply available taken into consideration?

General STREETT. As a matter of fact, that point was not brought up at the discussion.

Senator FERGUSON. Isn't that the whole point?

General STREETT. As a matter of fact, we didn't know how long this situation was going to last.

Senator FERGUSON. No; but with what was happening in the South, if you were going to lose, you would lose right away. It wouldn't be months. It wouldn't be years.

General STREETT. No; that is true, but then the next would be Alaska. They would come after us.

Senator FERGUSON. That is true, but how soon would you have to have the gas at Whitehorse?

General STREETT. Just as soon as you could possibly get it. At that particular time, as you gentlemen remember, we were losing tankers in the Caribbean, along our east coast there was a tanker shortage, tankers were being used in the west; that is, in the Pacific, to keep the Navy going.

Senator FERGUSON. But we weren't losing them in the Pacific.

General STREETT. We lost some.

Senator FERGUSON. Very few.

General STREETT. As a matter of fact, it was the ones that weren't in convoy. In fact, I believe we lost two off the Oregon coast about that time. There was one submarine that we know of that shelled one of the refineries or one of the tanks down off Santa Barbara in February.

Senator KILGORE. I know of that.

General STREETT. It wasn't rosy. We had no assurance that they wouldn't be right in there, and as a matter of fact, an Army officer is naturally pessimistic. Of course, things began to brighten up after the Coral Sea battle, even though we lost the *Lexington*.

Senator FERGUSON. When we got out to Kodiak and Dutch Harbor, then you weren't fearful?

General STREETT. What do you mean, when we got out there?

Senator FERGUSON. When we got out there and established ourselves.

General STREETT. Well, when we got out there, that was after this time, you see.

Senator FERGUSON. I appreciate that, but even though you feel that you have to have a thing at one time, things may change. Why go ahead? That is one of the points here.

General STREETT. Well, as a matter of fact, it is damned if you do and damned if you don't. If things had gone the other way, we would never have forgiven ourselves.

Senator FERGUSON. It wouldn't do you any good up until today. They could have gone badly right up to this hour and this gas wouldn't do you any good. You are not getting a gallon of it.

General STREETT. That is one of the things I am very sorry about, sir, but it looked at that time as though we would get it.

Senator KILGORE. Who fixed a time limit in which they thought you would get that thing into operation? Was there anybody at that meeting who made a time estimate?

General STREETT. I don't believe there was any time they thought they could get this thing going. We would get gas as soon as we could.

Senator FERGUSON. General, if you were in these dire straits, how were you going to ship the refinery to Whitehorse, and the pipes, and the pipe lines, and the drilling machinery? How were you going to get it up there if Japan was going to take Alaska?

General STREETT. As a matter of fact, I think that something was said about taking the drilling machinery up to Norman Wells by—what is the head of the waterway?

Senator FERGUSON. But you can only go a couple of months in the year.

General STREETT. This was in the spring. This was April.

Senator FERGUSON. Sure.

General STREETT. It looked as though we had a good summer ahead of us to get the stuff in.

Senator FERGUSON. How were you going to get the pipe in? How were you going to get the refinery in?

General STREETT. Sir, I didn't know, honestly. I was just hoping to God that somebody could do it, and if they could do it, it was velvet. That is my point. We were in pretty dire straits there. The War Department was the gloomiest place on the face of the earth, and naturally, being called in as somebody who knew the general situation out there, and asked, could we use it—that was practically all I was asked—I said we could use it.

Senator KILGORE. In fact, you could have used 10 times that and a whole lot more.

General STREETT. Yes.

Mr. HALLEY. Did they need you to tell them that it could be used if it was there? Wasn't that an obvious proposition?

General STREETT. Well, yes; but if it was perfectly obvious when we considered at that time the dangers—

Mr. HALLEY (interposing). I have been sitting here listening to the story, which I might tell you has been put into the record by almost every witness, that we were losing the war, and I fail to follow the logic of that. I wish you would show the connection between the fact that we were losing the war and the fact that we ought to build \$130,000,000 worth of oil wells and pipe line and refinery in Alaska. All things don't follow from the fact that we were losing the war, and I fail to see the connection. I wish you could put that in the record.

General STREETT. The question of the cost was something I knew nothing about.

Senator FERGUSON. No; but what about the cost in manpower?

General STREETT. I didn't know anything about that, sir.

Mr. HALLEY. Did you have a copy of the directive when it was issued?

General STREETT. I don't remember seeing a copy of the directive.

Mr. HALLEY. Were you told at the end of that meeting that Colonel Graham was going to recommend to General Somervell the building of this project?

General STREETT. I don't remember that that was clearly brought out.

Mr. HALLEY. Was it inferred at all that they were ready to go ahead with it at that point.

General STREETT. I seemed to believe they were going ahead with the idea of doing something about it.

Mr. HALLEY. What would you have recommended be done about it at that point, with the information that you had? Would you have tried to find out a little more about what was involved?

General STREETT. As a matter of fact, if I had had the job to do, that would have been something else, but I didn't.

Senator KILGORE. Let me ask you a hypothetical question, then. At that meeting, had you been informed that you would get around 450 to 500 barrels of high-octane gasoline a day from this proposition—let's leave the dollars out completely, not figure cost—but it would take almost 2 years before you would get any gasoline from it at all, that it would take so many thousand tons of shipping up the inland passage to Skagway, that the railroad was going to have the curves straightened out on it and a lot of dirt taken down off the cuts in order to get this equipment in, what would your answer have been then?

General STREETT. I wasn't asked that.

Senator KILGORE. But I say, had you been asked that, and viewing it as you saw it at that time, with the danger of the Japanese invasion of the Northwest very imminent, and the possibility that if they took it, they would threaten the entire West, and that—

General STREETT (interposing). Naturally, there wouldn't have been any cost too great.

Senator FERGUSON. But you couldn't get in there.

Senator KILGORE. I am talking about availability of supply; I am talking about logistics here. A 6-inch cannon that would shoot from Algiers and bombard Rome is a wonderful thing if you have it in Algiers, but if you can't get it there for 2 years, it isn't helping General Clark very much.

General STREETT. That is true.

Senator KILGORE. It isn't much good until you get it.

General STREETT. But if you get that tomorrow, it would be a big help.

Senator KILGORE. But you are leaving that one point out, the 2-year element.

General STREETT. I am not. As a matter of fact, there was nothing said about the 2 years.

Senator KILGORE. In my opinion there was this danger: If your theory went through and the Japs did go in there, what development we did do would be for Japanese benefit, because you couldn't pull those wells up and you couldn't take that pipe line out, and we were probably putting gasoline in there for the Japanese.

General STREETT. That is possible.

Mr. HALLEY. What were you told about the thing, General? It seems to me you didn't know how much material was involved, you couldn't know what the time element was, you didn't know how much gasoline would be produced, you erroneously thought the materials were going all up the inland waterways route rather than through the sea. Were you given enough information for you to be able to form any judgment on the project whatsoever?

General STREETT. None except, Was there a requirement? Would it be a good thing to have it, and locally?

Mr. HALLEY. Those were obvious questions. You didn't need a general in the United States Army to answer those questions, did you?

General STREETT. That is correct. Of course, I wasn't called in to pass upon the cost, the engineering difficulties, the shipping difficulties, or anything like that.

Mr. HALLEY. Well, now, as a General on the General Staff in charge of operations, those were matters which would interest you, would they not, before making a determination on a project?

General STREETT. Naturally.

Mr. HALLEY. Furthermore, being in charge of operations, you were acutely aware, I presume, of the great need for supplies of all kinds out on the Aleutians and in Alaska by the actual fighting forces.

General STREETT. That is correct, sir.

Mr. HALLEY. And I presume you were acutely aware of the tremendous need for shipping.

General STREETT. That is correct.

Mr. HALLEY. And of the suffering in Alaska by our troops for lack of shipping, were you not?

General STREETT. Yes.

Mr. HALLEY. Would not all of that be relevant to the question of whether ships should at that point have been used to cart material up to Whitehorse, or to Skagway, for a pipe line and refinery that wouldn't show results for 2 years?

General STREETT. That was all relative. How much shipping would it take? I didn't know. Nothing was said about it.

Mr. HALLEY. There were no facts, in other words.

General STREETT. There were no facts on this thing.

Mr. HALLEY. To make an intelligent judgment on the subject, you would have to have those facts?

General STREETT. If I were called on to make that judgment.

Mr. HALLEY. You mean by that, the judgment as to whether or not to build the project?

General STREETT. Whether the project was worth the cost. That was a point that I was not called upon to answer.

Mr. HALLEY. That is right.

Senator KILGORE. In other words, let's put it down concretely here. Really, if somebody had said to the United States Army at that time, "Gentlemen, we can furnish you 500 barrels of high-octane gasoline beginning next week; it is going to cost you \$130,000,000 to get it," it would have been money well spent under the conditions, and no question about it.

General STREETT. That is right.

Senator KILGORE. And that is what your answer was based on?

General STREETT. Absolutely. There is no doubt about it.

Senator FERGUSON. But now, General, let's look at this. We knew it wasn't going to be obtained there by magic, you see. That was an impossibility.

General STREETT. That is correct, sir.

Senator FERGUSON. So at least we ought to have been realists. Now, in the light of all this emergency, that we are about to lose Alaska and the west coast, and everything, you wouldn't take fifteen or twenty thousand men away from this emergency and start to ship goods in up there that wouldn't be useable or get results for 2 years, would you?

General STREETT. No; but I think if I could have gotten results in 6 months, I would have stepped in.

Senator FERGUSON. But you couldn't get it in that length of time. Sure, fiddling is a good thing, but fiddling did no good when Rome was burning, you see.

General STREETT. As a matter of fact, the impression that I was given was that it could be done very shortly.

Senator FERGUSON. Well, now, we want to know who told you that.

General STREETT. I say the impression I gained.

Mr. HALLEY. Where did you gain the impression?

Senator FERGUSON. You don't act on impressions.

General STREETT. I didn't act.

Senator KILGORE. As the general line of conversation, you felt that very shortly you could have that much gasoline?

General STREETT. I am not in a position to talk about how long it takes to build a refinery or drill wells. I don't know.

Senator KILGORE. But your answer there, and your decisions that you made there that day, were really based upon an impression that you had gained in some way during that conversation, that this would be available in time to be of use?

General STREETT. If there was anything we could do, if we had a long time or a short time to do this job—of course, the longer time we had, the better it would be.

Mr. HALLEY. Let's stop a minute there on the time element. We were getting very busy building a Navy, weren't we?

General STREETT. You bet we were.

Mr. HALLEY. And we were building a lot of tankers and ships.

General STREETT. Yes.

Mr. HALLEY. And we expected, and we have been justified in our expectations, that that building program would show concrete results by 1943.

General STREETT. That is right.

Mr. HALLEY. If the building program didn't show concrete results, a mere 450 barrels of gasoline in Alaska would have been nothing compared to the catastrophe of all that building with no results, is that not so?

General STREETT. That is true, but think of this—

Mr. HALLEY (interposing). Let me go just one step further, and then I wish you would put that in. And if we did succeed in building the tankers as we had planned, and as we had to if we were to do anything in this war, wouldn't we have had a tanker available to take some gasoline up to Alaska?

General STREETT. Yes, if we had had a place to take it to.

Mr. HALLEY. Building a pipe line up there in two years wasn't going to protect Alaska for you.

General STREETT. It seems to me not if it took too long.

Mr. HALLEY. It did take two years. They have been at it a year and a half, and they are still at it.

General STREETT. That, of course, was something that was not considered or not appreciated at that time.

Mr. HALLEY. From whose statement did you get the impression that this project could be completed in a matter of six months?

General STREETT. I don't think it was a question of specific time.

Mr. HALLEY. Did any particular person act as the spokesman in outlining the situation at the meeting?

General STREETT. As I remember, it was a general discussion.

Mr. HALLEY. It couldn't have been general discussion.

Senator FERGUSON. Who had the knowledge, in your opinion?

General STREETT. There were people there who had had a lot of experience.

Mr. HALLEY. Was any representative of the Engineer Corps there?

General STREETT. I was under the impression—I still am—that General Sturtevant was there. I am not sure.

(Off the record.)

General STREETT. This meeting was a very informal meeting.

Senator FERGUSON. But in the whole strategy you seem to tell us now it was a very vital meeting. How could it be so informal and yet be so vital?

General STREETT. Well, it turns out that those things generally are, when the decision is made.

Senator KILGORE. At that meeting did anybody comment on the fact that there was navigable water on the Yukon within 300 miles of Norman Wells, with a 6-foot channel?

General STREETT. I don't know exactly anything about the channel.

Senator KILGORE. That it was a much easier place to build a line to that point than it was to build it to Whitehorse, and about half the distance?

General STREETT. I will tell you what was discussed, as I remember it.

Senator KILGORE. Do you remember any discussion of that?

General STREETT. No; I remember this: The question was raised, Could you bring this stuff over by cats to Mayo on sledges and then barge it down to the Yukon? I think that that was the only thing that I remember as to the navigation of those waters.

Senator KILGORE. Was there any alternative discussed at the meeting, other than Whitehorse, as a site for the refinery?

General STREETT. I don't remember specifically. Whitehorse was selected or proposed, I believe, for two reasons. It was the closest spot on the proposed, then being constructed, Alaska Highway to a place where you could get shipments up, and it was generally central to the route.

Senator KILGORE. Those were the only two reasons that were discussed?

General STREETT. Yes, sir.

Senator FERGUSON. How would we have built the road if we didn't ship the trucks and machinery up the inland passage?

General STREETT. Of course, that is quite an undertaking.

Senator FERGUSON. We couldn't have done it, could we?

General STREETT. We couldn't have done it at all.

Senator FERGUSON. There wouldn't have been any reason for doing it in this emergency.

General STREETT. You couldn't have done it as rapidly, because they began building that road from both ends.

Senator FERGUSON. Yes.

Senator KILGORE. And the middle, too.

Senator FERGUSON. And the middle.

General STREETT. And the middle.

Senator FERGUSON. Many spots.

General STREETT. That is right. That takes a lot of equipment. I understand that road was started about the middle of April and was usable in the late fall.

Senator FERGUSON. Usable in spots.

General STREETT. Yes. I think there was a part of it that was open around Tanana Crossing.

Mr. HALLEY. You still can't run the whole road, can you? You can't today.

Colonel FRIEDLICH. That would have been true, I think, about 2 weeks ago, Mr. Halley.

Senator FERGUSON. Can you get over it now?

Colonel FRIEDLICH. I read either in a War Department release or in a paper that—I guess I read it in the Congressional Record.

Senator KILGORE. You read it in the paper, and it was the fact that a Greyhound bus—

Colonel FRIEDLICH (interposing). They ran a bus from Fairbanks to Dawson Creek. That was 2 weeks or 10 days ago, Senator.

Senator KILGORE. Ten days ago.

Colonel FRIEDLICH. Didn't I read that in a speech? Who was the Congressman up there about the same time you were? I think he reprinted something from the paper. We met him and asked him—

Senator KILGORE (interposing). I don't remember.

Senator FERGUSON. Was it Dimond?

Colonel FRIEDLICH. I will think of it. I am not sure.

Mr. HALLEY. From what you know of the road, though, in crossing the river beds today, would the Greyhound bus be able to use the road, or didn't it just detour around the road and cross the dry river bed?

Colonel FRIEDLICH. As far as I saw, Mr. Halley, as far as I rode on the road, which was only 250 miles at the south end, from Fort St. John to Nelson, and as far as I observed from a plane of the rest of the road, there were bridges all along the road.

Mr. HALLEY. They are not finished yet.

Colonel FRIEDLICH. Well, they may not have finished certain of the permanent bridges. They had bridges, I think, all along the road by last November, when the so-called official opening came.

Senator FERGUSON. But most of them washed out.

Colonel FRIEDLICH. Some of them, Senator, washed out and were put back as temporary bridges, but they would carry big loads. They would carry the heaviest traffic they had, as I understood it. Now they are going ahead, and some of those bridges will stay there permanently, even though you may call them temporary bridges, and a great many of them will have permanent bridges substituted.

Mr. HALLEY. I am referring to the three or four big rivers where you are going to have to put in steel bridges of some size.

Colonel FRIEDLICH. I saw no difficulty in crossing.

Senator FERGUSON. They drive for half a mile on the sand—

Mr. HALLEY (interposing). Across the river bed.

Senator FERGUSON. Down the river and then across the stream itself, which is a very small stream in the summer and outside of flood days, to cross. Now that isn't passable.

Colonel FRIEDLICH. Senator, I can't argue that with you because I don't know, sir. It was not my impression. When I was up there

I understood the whole road was passable, except about 30 miles which was between—well, it was in the Alaska portion.

Senator FERGUSON. It was about the border.

Colonel FRIEDLICH. About the border. That had washed out or something.

Senator KILGORE. There is another stretch northwest of Watson Lake that is pretty bad, between Midway and Watson Lake.

Senator FERGUSON. They had a lot of trouble getting things over.

Colonel FRIEDLICH. I did not understand that there were any streams that were not bridged this summer, for example, in the fall when I was up there.

Mr. HALLEY. As Senator Ferguson said, the little bit of stream that runs in the fall is bridged, but the rest of the way is just running on the dry river bed, which, as soon as a little moisture collects—

Senator FERGUSON (interposing). Washes out.

Senator KILGORE. In fact, there is one river up there in which the stream divides itself like the Delta of the Mississippi, into seven or eight small, narrow streams; and there they run along the sands of the river bed, and they have just little cross-overs over these little streams during the dry season, but, of course, those cross-overs will wash out.

Colonel FRIEDLICH. Of course, there is no reason, Senator, that those bridges can't be built, if they are not built by next spring. As I understand it, at the Peace River bridge they told us the story that they had about \$150,000 worth of scaffolding or whatever you use to build bridges, and they were about to send a bill in to the Government because of the ice that was going out, and they got it off the day before the ice went.

Senator FERGUSON. Here is the idea: It was going to cost a lot of shipping to ship in bridges and to ship in equipment to make this road.

Colonel FRIEDLICH. Senator, heaven knows I am probably the least qualified logistic officer in the War Department or officer familiar with logistics, but on that same theory you wouldn't have anything in Europe. For instance, if you send 100 tanks over to the African or Italian theater you are cutting out supplies for a certain number of men or a certain number of men or clothing for those men. You have to balance the conveniences. There is no doubt in anybody's mind that if General Streett could have had his oil the 1st of June of that same year it would have been worth—you figure out how many more times it will be worth now, but aren't we open to the same criticism we are getting on this, for example (again something I know very little about, but General Streett knows a lot about it): As I understand it, they have been playing around with the B-29, which is supposed to be a very fine plane and a better plane than any plane we have got for the same purpose, for over a year or a year and a half. Haven't you, General?

General STREETT. It has been on the boards for a long time.

Colonel FRIEDLICH. I know there were some contracts made in 1942, in the early part of 1942. That plane is not turned out yet in any great quantity. If they should stop the war—

Senator FERGUSON (interposing). But that is an entirely different proposition.

Colonel FRIEDLICH. Well, Senator, it may be, but it is only a question of degree. If the war should end tomorrow we would have spent a small fortune on the B-29 and you could multiply that by almost any product we have.

Senator KILGORE. The point I think Senator Ferguson is getting to, Colonel (and we are getting clear off Canol and on to Alcan), is to make it clear that some of those bridges, like that Peace River bridge and others, are going to take a tremendous volume of freight. Most of the time when you could use it the present system they have there is all right. They are getting their freight across there, and they are getting heavy loads across using that sand and these wooden bridges, letting the doggone thing wash out and put it in again as soon as the flood is over. You will save a lot of freight.

We are looking at the progress of the war, too, there, and we can save some freight there, even if we have to replace those bridges every summer.

Colonel FRIEDLICH. That is right, Senator. They showed me a ferry—

Senator KILGORE (interposing). That is just the way I looked at it, that it would pay us to rebuild those bridges 10 times.

Senator FERGUSON. Surely. They have the timber right there.

Colonel FRIEDLICH. Senator, we were present when they dedicated the Peace River bridge, and admittedly there are no other bridges that compare with the Peace River one. They showed us the ferry that they had used to take freight across for building that bridge and for building the road. It was the only way to get across Peace River. It was unbelievable that they could get that quantity across Peace River.

Senator KILGORE. I want to correct that. It was another river north of Peace River that I was talking about. Peace River was a big channel that you had to cross in some way with a bridge. But there are some places up there where you have a big river only when the spring thaw hits all of a sudden. You have a warm wind on the mountains, and then the river fills up and you have a big stream for a short time. Then it drops back down in its bed, and you have a few little narrow streams running down the middle of that bed.

Senator FERGUSON. Who built the Peace River bridge? We didn't pay for that.

Colonel FRIEDLICH. I think we did.

Senator FERGUSON. Did we pay for that, too? How did we ship that in?

Colonel FRIEDLICH. That probably came up by rail to Dawson Creek, which was what—40 miles, 45 miles, from there. Then they had a provincial road which was improved from Dawson Creek to Fort St. John. Peace River Bridge is a mile or two out of Fort St. John.

Senator FERGUSON. Yes, I know.

Colonel FRIEDLICH. There wouldn't be any reason to ship it any other way. It could have come in by rail.

Senator KILGORE. Let's get back on oil. Anything else, General?

General STREETT. I don't think there is anything else, sir.

(Off the record.)

TESTIMONY OF BRIG. GEN. W. B. PYRON, ARMY-NAVY PETROLEUM BOARD

Senator KILGORE. Mr. Halley, you can lay the foundation.

Mr. HALLEY. All right. General, I believe you testified on this matter before this subcommittee before, but since then we have had so many witnesses testifying about the conference of April 29 that the committee felt it would be best if you came back and went into it in the detail that the other witnesses have done.

Senator KILGORE. Let me ask him a question to lay a foundation for that. Aside from you yourself and these two men from Imperial Oil Co., were there any other men with oil experience, oil production and refining experience, attending that meeting?

General PYRON. This man Smith from the Board of Economic Warfare was classified as an oil man and was the head of the State Department's Oil Section at that time. I didn't know him personally, and I can't testify—

Senator KILGORE (interposing). Did you know him by reputation, as to whether or not he knew anything about oil developments? There are a lot of people who like to talk about oil and "expert" around, but it takes a certain amount of practical experience to take even the best engineer in the world and get him to know anything about oil production, transportation, and refining.

General PYRON. The little I knew about him was that he had had no broad experience in the oil business or as a refiner. He seemed to know production pretty well. He knew distributing and marketing. But, frankly, I don't know too much about his background and didn't at that time.

Senator KILGORE. I see. Then, unless Smith was, you were the only Government representative, and you were at that time an officer of the Army.

General PYRON. Yes, sir.

Senator KILGORE. All right. Now go ahead. I wanted to get that fact into the record.

General PYRON. And have been since 1940; in fact, practically the whole year of 1940.

Mr. HALLEY. When did you first hear about this proposal to locate and produce oil in the vicinity of the Alcan Highway?

General PYRON. I think the first time I heard about it, Colonel Graham, who was special assistant to the Secretary of War and General Somervell, came in my office and just asked me if I knew about it, what I knew about it, and then just at different times very informally this matter was discussed around the War Department. The first time that there was any concentrated effort or thought on it that I was connected with was this meeting that has been referred to, on April 28 or whatever that date was.

Mr. HALLEY. The one meeting in General Carter's office.

Colonel FRIEDLICH. The 29th.

General PYRON. Yes. Outside of that, the discussions were purely informal, and I couldn't say whether there were two or three of them.

Mr. HALLEY. In those first preliminary meetings, did you have any opinion or any knowledge of the situation in Canada?

General PYRON. Yes. As an oil man, we know about all these things world-wide, are supposed to.

Mr. HALLEY. What did you know as of that time?

General PYRON. I knew that they had a small field there. I knew the number of wells. There were some publications on it. Just before I came into the service in 1940, I talked to an oil man who was up there on a hunting trip and who visited this field, at Houston, Tex. One night, just as a matter of general interest to the oil business, he described this field in some detail. It seems they were delayed; their plane was supposed to pick them up, and they were there several days. He thought it was a most unusual thing and gave us a pretty good description of it.

Mr. HALLEY. What did you understand about it as of that time?

General PYRON. Well, I understood that it was a very good grade of oil.

Mr. HALLEY. Did you understand that it was a good grade of oil for making aviation gasoline?

General PYRON. At that time, Mr. Halley, there were none of us who knew much about aviation gasoline. Back in 1940 there was very little known about aviation gasoline of high octane.

Mr. HALLEY. I am talking about 1942 in the month of April. Did you know anything about the qualities of this oil other than what some fellow had told you at a conference?

General PYRON. Excepting the analyses we had seen and the gravity of the oil.

Mr. HALLEY. When did you see the analyses?

General PYRON. Well, I can't say the exact time. I think perhaps the analysis of it had appeared in trade publications. At any rate, it was generally known in the oil industry that it was what we termed a high-gravity oil with a paraffin base.

Mr. HALLEY. Perhaps we can save time if we put it this way: Prior to your meeting of April 29 in General Carter's office, did you have any knowledge of the oil fields at Norman sufficient to form an informed judgment upon which you would take action?

General PYRON. I did not have the detailed information on the production and on the geology of the field. I had a general knowledge of it, but until that day I did not have the detailed knowledge of it.

Mr. HALLEY. Did you have what you would call a knowledge from reliable sources?

General PYRON. General knowledge; yes, sir; I would say so.

Mr. HALLEY. Those sources being just whatever had appeared in trade magazines or what your friends had told you?

General PYRON. Yes; and what friends had told me who had been up there.

Mr. HALLEY. That is one fellow.

General PYRON. Well, I talked to more than that. I recall—I have even forgotten the year that some geologist who had been up there discussed it, and it was such an unusual thing, such an unusual type of oil up there almost in the Arctic Circle, that it was something of unusual interest. Whether you wanted to go in there, as an oil man it was just something different.

Mr. HALLEY. Did you know how many wells they had up there?

General PYRON. I think they had, as I recall it, four producing wells, four or five.

Mr. HALLEY. Do you remember how many dry wells they had?

General PYRON. Oh, I think there were two or three that were drilled dry, sir.

Mr. HALLEY. I mean, did you know it before this conference of April 29? Did you know how many dry wells they had?

General PYRON. I don't know whether I knew the exact number, but I knew they had drilled some dry holes.

Mr. HALLEY. And did you know where they drilled them?

General PYRON. I had never seen, as I recall, a detailed map until the day of the meeting.

Mr. HALLEY. On the basis, then, of just general information that you had, were you in a position to say that there would be oil there in appreciable quantities?

General PYRON. I was not in a position to say until I saw the production and the statements of the pressures on these wells and the geology and the cross sections that they exhibited as their records. I was not in a position until that time to say that it was my opinion it would produce this, that, or some other amount.

Mr. HALLEY. I notice you haven't mentioned the information you got from the individuals who attended the conference.

Senator FERGUSON. Do you remember LeSueur?

General PYRON. LeSueur wasn't there.

Mr. HALLEY. Did you consider that information as information which was pertinent to the question?

General PYRON. Oh, very much so; because I recall very distinctly that they had with them in this conference a geological map that showed the contours as they knew them. Here was the Mackenzie River [writing on a paper], and they had contours, as we know in the oil business, and then they had what we call cross sections of the subsurface. Those cross sections ran from the well farthest out, back to the outcrop in the mountains.

Mr. HALLEY. I am talking about what they told you, their opinion of their own oil field. Did you give that any weight?

General PYRON. Yes.

Senator FERGUSON. Did you see LeSueur's letter?¹

General PYRON. I saw it some time later. It wasn't sent to me. I saw it some time later.

Senator FERGUSON. Was that what you were told, the same thing at the meeting?

General PYRON. They told us this: Their geologist, Parker or Wheeler, exhibited these geological charts and cross sections. They were asked the question, if additional drilling was done, what they felt they could produce. In this informal conversation, they thought they might produce 3,000 barrels a day, but they couldn't assure it.

Senator FERGUSON. You remember the letter? Did it state the same thing as they had stated?

General PYRON. Well, I think perhaps it would go further.

Colonel FRIEDLICH. Do you have a copy of the letter? Would you show it to General Pyron?

Mr. HALLEY. I think, perhaps, we should wait until we get to that point.

Colonel FRIEDLICH. You are asking him about a letter.

¹ See Exhibit No. 1101, appendix, p. 9855.

Senator FERGUSON. I am asking if he remembers it.

General PYRON. I say I don't recall that they were pessimistic at all in their statements before these members, as they were in the letter.

Senator FERGUSON. Then is it your judgment that they should put this in, General?

General PYRON. You mean?

Senator FERGUSON. Did you pass on it and tell them to put it in?

General PYRON. They asked me if I thought it was capable of producing, if drilling was done, 3,000 barrels a day. I told them I thought it was, with the qualification that some more drilling be done. No geologist or no oil man would make a definite statement at that time that it would produce 2,000 or 10,000 until some additional wells were drilled to determine the size of the field.

Senator FERGUSON. When is the first that they drilled those wells and you finally came to the conclusion that you could produce 3,000 barrels?

General PYRON. When we were positive of 3,000, it was then some time in the summer of 1942.

Senator FERGUSON. But you did start to put the refinery in before that?

General PYRON. No.

Senator FERGUSON. You didn't?

General PYRON. No, sir.

Senator FERGUSON. Go ahead.

General PYRON. That refinery was bought at Corpus Christi, as I recall it, in the fall of 1942. We dismantled it and moved it up there. In other words, the thought was this, gentlemen: As I understood, the War Department was anxious to get any oil up there in that territory, and here was the only commercial field anywhere within any reasonable distance of this area.

Mr. HALLEY. Did you understand that they wanted any oil, at any cost?

General PYRON. I wouldn't say "At any." As a matter of fact, the cost as such was not fully discussed.

Senator FERGUSON. What about the manpower cost?

General PYRON. We knew it would involve a lot of manpower, yes.

Mr. HALLEY. Would any amount of oil have justified the expenditure of manpower and material, any drop of oil?

General PYRON. That wasn't for me to decide. That was a War Department decision. If these Army officers who were in charge of the defense of the country thought that 500 barrels of aviation gasoline and a thousand or 1,500 of motor oil were essential to the war effort, then it wasn't down at my level to decide. I wasn't supposed to question the cost.

Mr. HALLEY. You just heard the testimony of General Streett. Wasn't he the ranking officer there from the operations?

General PYRON. I don't recall exactly. I presume he was.

Mr. HALLEY. You just heard that he gave no consideration to those problems and wasn't asked that, the problems of whether or not the cost in materials and men and time were worth what you would get out of it.

General PYRON. You can't always in wartime, Mr. Halley, count the cost.

Mr. HALLEY. In materials and men and shipping?

General PYRON. In dollars as to its possible value to defense.

Senator FERGUSON. We are not talking about the dollars as such, but the dollars took the form of manpower and shipping power.

General PYRON. That is all right. It may take a tremendous amount but if, as a result of that, you get a commodity that may save you myriads of men and officers.

Mr. HALLEY (interposing). That may be, but just wait a minute. How much of the commodity are you going to get, and how many men will it save you? Was that considered? General Streett said he didn't consider it. Did you? Did you give that consideration?

General PYRON. We couldn't figure it out.

Senator KILGORE. Were any estimates given there as to completion date and when delivery could be expected?

General PYRON. That wasn't discussed in great detail.

Senator KILGORE. Don't you think that was rather vital?

General PYRON. It was vital to the thing.

Senator KILGORE. In fact, it was about the most vital. Time of delivery and volume were the most vital things in it, not money or anything else, if you were going to use that gasoline. Weren't those the two most vital points in it?

General PYRON. It was certainly a factor, but there were things that the War Department—the Engineers—could have done if the situation in the midsummer of 1942 had warranted.

(Off the record.)

Senator FERGUSON. General, when you discovered that it wasn't as important as you thought at first, why didn't they stop it?

General PYRON. Because it was—

Senator FERGUSON (interposing). Or was it impossible for the Army to stop something they started?

General PYRON. Oh, yes; yes, sir; it is possible for them to stop it, but it wasn't my decision not to stop it.

Senator FERGUSON. But whose decision would it be to stop it?

General PYRON. It would be the decision of the General Staff.

Senator FERGUSON. Did they seek your advice on stopping it?

General PYRON. I don't recall that they sought it on that. I had discussed with them at different times, and my advice has been and is today that the thing should go ahead and should be completed and that it should be made available to the forces today.

Senator FERGUSON. It looks now as if it is a good peacetime thing, doesn't it?

General PYRON. Yes, sir. It might well serve a very valuable purpose in the present war.

Senator FERGUSON. How?

General PYRON. May I have this off the record?

Senator FERGUSON. Yes.

(Off the record.)

Senator KILGORE. In exactly the method they are going at it now?

General PYRON. Yes, sir. They are still going ahead with some other drilling. It, of course, far exceeds the 3,000 barrels.

Senator FERGUSON. Why are they going ahead, then?

General PYRON. They are going ahead on that directive for 20,000.

Senator FERGUSON. But why? Why make a directive when you have pipe lines for only 3,000?

General PYRON. It would require another pipe line and an additional refinery.

Senator FERGUSON. Is that the purpose?

General PYRON. I don't know what the purpose is, but they were given a directive to try to develop 20,000 barrels a day, and that would certainly be a very valuable asset.

Senator KILGORE. What I would like to know is who determined that directive. Who worked out that?

General PYRON. That was determined, I assume—I don't know who sat in the meeting, but the directive was from General Somervell, commanding general, Army Service Forces, who is in charge of the supply of the Army, of course.¹

Senator FERGUSON. When did you come to this very definite opinion that this is a great thing?

General PYRON. I don't know what you mean by "a great thing."

Senator FERGUSON. Well, that we should have it, that we should continue to develop 20,000 barrels.

General PYRON. I don't know the date of that directive.

Colonel FRIEDLICH. I think the Senator is asking you when did you come to that.

Senator FERGUSON. Yes. When did you reach the opinion that it was a great thing?

Colonel FRIEDLICH. You expressed the opinion that—

General PYRON (interposing). I have been of that opinion all the time, that it will be an important aid. Most important of all, I think, it is a great piece of insurance to the protection of Alaska and the Northwest.

Senator FERGUSON. Do you have any fears that the Japs are ever going to take Alaska or the Northwest?

General PYRON. Well, it could happen.

Senator FERGUSON. Oh, General! If we haven't got a staff in the Army that knows any more than that a thing could happen—yes, anything is possible, surely, but an Army officer is supposed to have judgment and know what can happen under the circumstances.

General PYRON. Even if they never get on the Aleutian Islands again, I still say that any amount of oil you can have there, the more, the better, up to the limit of the requirements of the United States Army and Navy. It is still justified today from the operations you know must come, if for no other reason.

Senator FERGUSON. Have you any inside information that that is going to be the way this war is won, that we will get the gas up there and take it out and use it?

General PYRON. I just know that gas and oil and fuel for the Army and Navy has got to go to the Pacific.

Senator FERGUSON. And you think we are going to use that by taking it into the Pacific for the Navy to help win this war?

General PYRON. If they had it up there, they would use it today. I mean in the North Pacific operations.

Senator KILGORE. But that "if" comes in there.

Senator FERGUSON. That is the thing that worries me.

Colonel FRIEDLICH. Isn't that inherent, Senator, in war?

¹ See Exhibit No. 1096, appendix, p. 9843.

Senator KILGORE. In another year you will get your other pipe line, and one mission of 10 bombers would exhaust the total amount of production of this plant each day, or, under normal conditions, you would figure you might use 40 bombers up there, figuring rest periods between missions. Forty bombers wouldn't be adequate to handle that situation, by any means. That wouldn't be one-tenth what you would need up there if the thing ever got tense.

General FRIEDLICH. Those are more bombers, aren't there, Senator, than General Streett testified were up there when the project was conceived?

Senator KILGORE. Certainly. We are talking about the present viewpoint as against the viewpoint when the project was conceived.

General FRIEDLICH. The present viewpoint, sir, as I understand it, is 20,000 barrels. I suppose you could multiply your bombers by 6.

Senator KILGORE. But 20,000 barrels of oil at the casing head are not 20,000 barrels of airplane gasoline.

General FRIEDLICH. Well, no.

Senator KILGORE. You have transportation and refining and distribution after that.

Colonel FRIEDLICH. I think it is perfectly clear what the difficulties would be in a large refinery—I mean generally clear—but would you explore the ease or comparative ease or difficulty of laying a pipe line which would take 17,000 barrels, assuming the other would take only 3,000, once you get the 3,000 one in?

Senator KILGORE. What will handle 17,000 barrels, General; what size?

General PYRON. I would have to do some calculation on that.

Senator KILGORE. It would take about a 12-inch line?

General PYRON. Probably a 10-inch line.

Senator FERGUSON. General, we need it here in the East, and we are talking about going up there and putting it in.

General PYRON. Gentlemen, the way I view this thing, as a citizen and as a soldier, is that when you are in a war and in a bad war, you can't make decisions on the dollar cost.

Senator FERGUSON. Wait a minute. But you have to use better judgment when you are in a bad war than when you are in an easy one.

General PYRON. That is right, sir.

Senator KILGORE. Let's get down to another decision before you answer. Sometime ago, the Army cut back tank production. Isn't that right?

Colonel FRIEDLICH. Yes.

General PYRON. That is right.

Senator KILGORE. Not only cut back tank production, but converted plants in tank production to other production. There was a possibility that we might overnight go back into tank warfare and need a tremendous number of tanks, but the judgment of the Army, the General Staff's judgment, which has proven itself to be correct, at that time was that we could cut tank production about 80 percent and still go through. They took the risk of cutting that production and converting those plants to other production, which would have meant a problem of months, probably, getting back into tank production again.

That is the question we are raising here. We are not going into the past history of this thing, but is it advisable to go ahead and, if

you go ahead, to whose benefit will it redound? Who will get the benefit?

Colonel FRIEDLICH. May I answer that off the record, Senator. I am not a witness, and I am not sworn.

Senator FERGUSON. We will be glad to take your judgment and let it go into the record unsworn.

Colonel FRIEDLICH. I would rather not, if you would make this off the record. Then if you want to put it on, it is up to the committee.

(Off the record.)

Colonel FRIEDLICH. I think probably the best thing to do is to put that letter in the record.

Mr. HALLEY. Have you got it?

Colonel FRIEDLICH. No. You have a copy.

Mr. HALLEY. Refer to the fact that there is such a letter.¹

Colonel FRIEDLICH. Senator Ferguson has a copy, and Senator Kilgore has the original.

Senator KILGORE. I suspect the original is in the files of the committee.

Senator FERGUSON. Did the General Staff pass on it originally?

Colonel FRIEDLICH. You mean at that time in April?

Senator KILGORE. The Joint Chiefs of Staff.

Senator FERGUSON. Yes.

Senator KILGORE. When was it first submitted to the Joint Chiefs of Staff?

Colonel FRIEDLICH. I couldn't answer that. I should imagine my best information, I wouldn't say authentic, is that the question was put up to them sometime before October of this year as to whether the matter was still a military necessity and should be continued, because that was the result. Whether it was put up to the Joint Chiefs of Staff in the interim, I can't answer that, Senator. I don't know that it was, I will say that. It was put up to the Army General Staff in July of this year again on the same proposition, and the Army General Staff decided substantially what the Joint Chiefs of Staff decided 4 months later.

Senator FERGUSON. Was the Navy ever consulted on this? They seem to be in it.²

General PYRON. Well, I have never been in a conference with the Navy.

Senator FERGUSON. Did you consult the Fuel Oil Division, Ickes' department, Secretary Ickes?

General PYRON. Not at the time it was initiated, as far as I know.

Senator FERGUSON. Have you consulted them since?

General PYRON. Oh, yes.

Senator FERGUSON. Is he in favor of it?

General PYRON. Well, they looked at it from a commercial viewpoint and though it was quite an expensive thing, and I would say generally they are probably not in favor of it. They gave us the—

Senator FERGUSON (interposing). He happens to be a Cabinet member. The reason I am asking is that the Secretary of the In-

¹ Exhibit No. 1095, appendix, p. 9842.

² In this connection see Exhibit No. 1151, infra, p. 9911.

terior is a member of the Cabinet in the Government. Why wasn't he consulted originally? That is his business.

General PYRON. At that time, under the Presidential Executive order, his power as Petroleum Coordinator, as we interpreted it, was limited to the continental United States.

Colonel FRIEDLICH. I don't think there is any doubt, Senator, technically. I don't want to approach it technically, but technically he had no jurisdiction.

General PYRON. Certainly, as I understand it, there was no intention to bypass or slight him.

Senator FERGUSON. But he had all the knowledge; he had experts who knew all about it could find out, and give proper judgment. As I understand it, we were acting in an emergency. That is the way I get it today. I hadn't had it up to date that way, but today it looks as if we were acting in an emergency. In an emergency you have to have better judgment than when you are not in an emergency. Why didn't we use Ickes and everybody else?

General PYRON. That I can't answer, of course, personally, except that I know in the negotiations which were carried on by the State Department with Canada on the contract and all that—

Senator KILGORE (interposing). Mr. Halley, you had a question you wanted to go ahead with there.

Mr. HALLEY. Perhaps I had better wait until you have finished, because I should like to start way back again, before this conference.

Senator FERGUSON. Go ahead; go on back.

Mr. HALLEY. General, were you in charge of the question of whether or not this oil project should be gone into, or were you consulted by some other person who was in charge of the determination?

General PYRON. No, sir; I was not charged with it. At that time I was special adviser to the Under Secretary on petroleum matters and liaison officer on petroleum. That was to have contacts with the different people in the War Department and other agencies.

Mr. HALLEY. Who, then, officially approached you for advice concerning this Canol project?

General PYRON. As I recall it, Colonel Graham was the first man in the War Department (he is a civilian) who mentioned it to me. As I said a while ago, perhaps he mentioned it a time or two.

Mr. HALLEY. Did you understand that he was in charge of the study of the subject?

General PYRON. I don't know that he told me in those words.

Mr. HALLEY. The thing seems at this point a matter of informal discussion. However the discussions ended up in a rather definite directive from General Somervell, and I am rather anxious to determine who was in charge of the whole business, who was boss.

General PYRON. Frankly, I don't know who was in charge. Whether General Somervell designated Colonel Graham to do it, I don't know.

Mr. HALLEY. Would you say, if it was anybody, it was Colonel Graham, or was there anybody else who from your observation might have been in charge?

General PYRON. I just gained this impression from my informal conversation that Graham was getting the information together. Now about this meeting, the first I knew of that, General Carter called me and asked me to attend the meeting.

Mr. HALLEY. Did you understand that General Carter was in charge of that whole matter?

General PYRON. No; I didn't understand he was in charge.

Mr. HALLEY. Then that leaves nobody but Colonel Graham; is that right?

General PYRON. It was my impression that he was getting this information together.

Mr. HALLEY. Did you think he was getting information together or making a decision?

General PYRON. I didn't know that. I wasn't told.

Mr. HALLEY. Would you say that Colonel Graham was qualified to decide this entire matter for the United States Army?

General PYRON. That I couldn't say, because my acquaintance with him at that time was quite limited, and today I don't know his entire background.

Colonel FRIEDLICH. Is there any evidence heretofore, Mr. Halley, that Colonel Graham was in charge of this for the United States Army?

Mr. HALLEY. I am just trying to find out.

Senator FERGUSON. We are trying to find out who was.

Senator KILGORE. We are trying to find out who started it.

Colonel FRIEDLICH. The reason I am asking, Senator, is that there is an implication that there is evidence in the record, and I hadn't seen any. I have read the record.

Mr. HALLEY. To go on, General, you said your connection with this was informal; is that right?

General PYRON. Yes, that is right.

Mr. HALLEY. You consider that your only connection with this Canol project was informal?

General PYRON. Yes. I was just in these informal conferences to answer questions about what I thought of this and that.

Mr. HALLEY. Did you consider that your answers were responsible answers, or was it just an informal thing about which you didn't pay so much attention?

General PYRON. When I made a statement, it was either from knowledge or from information that I considered reliable.

Mr. HALLEY. When you were consulted about this project by Colonel Graham and then again in this general discussion at the conference of April 29, were you consulted on all matters or just on the technical question of whether or not you thought there was petroleum available?

General PYRON. That seemed to be the principal thing in their minds then. Was there a good probability that 3,000 barrels or more a day would be made available in this field.

Mr. HALLEY. Were you consulted or did you discuss at all the problems of turning that petroleum, if any were there, into gasoline and getting the gasoline to where it would be useful?

General PYRON. Well, at a later date they asked me—for instance, I was asked what I thought of the pipe line. I said, "I won't answer that until I know more about this oil."

Mr. HALLEY. When was this later date that you mention?

General PYRON. That was shortly following this meeting, as I recall it.

Mr. HALLEY. But after the directive was issued?

General PYRON. Well, I don't know. It was all about the same time, very close to it.

Mr. HALLEY. Wait a minute. This is quite important. The meeting was on one day, and the directive came out that same day. At a subsequent time, you say, you were asked about the pipe line. Was that on a date following April 29, 1942?

General PYRON. I couldn't tell you the exact date. It was discussed informally at this meeting.

Mr. HALLEY. The pipe line?

General PYRON. They said, "If we get it out, if we get this oil, we will have to have a line, and the line should be over somewhere in the vicinity of the Alcan Highway."

Mr. HALLEY. And you said you didn't know anything about the line.

General PYRON. I said I couldn't tell them, couldn't give them my opinion of the line until I knew more about this, especially the tests of the oil, which they did not have on the day of the meeting. That is why I say this information came later. Whether it was 1 day or 2 days, I don't recall.

Mr. HALLEY. On the day of the meeting, you didn't even have the pour temperature of the oil; is that right?

General PYRON. I don't know that we had. In other words, we didn't have information that I considered reliable.

Mr. HALLEY. Did you have the chemical content of the oil on the day of the meeting?

General PYRON. They had, as I recall it, brief analyses, gravity tests; perhaps just what we call a very brief analysis of it.

Mr. HALLEY. Did you consider that sufficient analysis to give you the chemical content?

General PYRON. Well, it wasn't a complete chemical analysis of the oil, no, but it gave you an idea as to what you might expect, what relative yields you might expect from that character of oil.

Mr. HALLEY. Were you consulted about the refinery?

General PYRON. No, no; I am not a refining technician. The only way I was consulted about it, I was asked by the engineers if I knew where there were any refineries not in operation that might be available, and I happened to know of one or two, which I gave them; and then later in their contact with Mr. Ickes' office, they gave the War Department engineers a complete list, as they said, of the refineries that might be available.

Mr. HALLEY. You were asked about refineries that might be available, however, subsequent to the conference of April 29.

General PYRON. No, sir.

Mr. HALLEY. Isn't that right?

General PYRON. No, sir.

Mr. HALLEY. Prior to that time?

General PYRON. No, sir. It was afterward.

Mr. HALLEY. Subsequent.

General PYRON. Subsequent; yes. I beg your pardon.

Mr. HALLEY. It was after the conference of April 29.

General PYRON. Yes.

Mr. HALLEY. Prior to the conference of April 29 your weren't asked about refineries at all.

General PYRON. No; not at all.

Mr. HALLEY. Nor at the conference.

General PYRON. I don't recall that the matter of procurement of refineries was discussed.

Mr. HALLEY. Was the matter of the type of refinery or the product of the refinery discussed?

General PYRON. Not at the meeting; no, sir.

Mr. HALLEY. Was it discussed before the meeting?

General PYRON. No, sir.

Mr. HALLEY. Did you discuss it with Colonel Graham or General Carter after the meeting?

General PYRON. You see, the directive was given to the engineers.

Mr. HALLEY. I am now interested in discussion prior to the directive.

General PYRON. Oh. I don't recall any detailed discussion as to what type of refinery should be put in.

Mr. HALLEY. Was there any discussion?

General PYRON. I don't recall any discussion about a refinery before the meeting.

Mr. HALLEY. Detailed or not detailed.

General PYRON. No, sir.

Mr. HALLEY. No discussion whatsoever.

General PYRON. Except there might have been some brief discussions about the little—what we call the skimming plant that was on the ground.

Mr. HALLEY. We will get to that in a minute. But not about the type of refinery you should build.

General PYRON. To be built; no, sir.

Mr. HALLEY. Or the problems involved therein.

General PYRON. I don't recall any conversation.

Mr. HALLEY. Certainly you weren't consulted about the engineering problems of the whole project, were you?

General PYRON. No.

Mr. HALLEY. You are not the engineer.

General PYRON. No, sir. That was turned over to the Corps of Engineers.

Mr. HALLEY. Were you consulted about the air forces' requirements or the operation requirements in the area? That wasn't your field.

General PYRON. No; that wasn't my function.

Mr. HALLEY. Were you consulted about the pipe line—the type of pipe needed?

General PYRON. I think that perhaps Colonel Graham asked me (whether before or after the conference, I don't recall) what size line, in my opinion, would be necessary to transport, we will say, 3,000 barrels a day, and you could give only a very rough opinion because of the lack of maps and contours, and so forth.

Senator FERGUSON. You would have to know the flow, too.

General PYRON. You would have to know the pour point of the oil.

Senator KILGORE. The temperature.

General PYRON. Just as a general proposition, I told him that a 4-inch line, if the oil would pump at all, probably would handle that volume of oil.

Mr. HALLEY. Did you let him know that you would want more data before you would make a definite statement about the type of pipe line?

General PYRON. I don't know that I told him that. He asked me what was my rough idea of what size it would take, or he asked me

if a 4-inch would do it. I told him that you couldn't say exactly but that under normal conditions that might prevail there, unless the terrain were worse than the few maps we had, 4-inch should do that much.

Mr. HALLEY. Let's put it this way: Were you purporting to give him a responsible, expert opinion, or just an offhand rough guess?

Senator FERGUSON. Was it what is in law known as a curbstone opinion or was it really a sound opinion?

Colonel FRIEDLICH. Some place in between.

General PYRON. I would say it was an opinion based upon considerable knowledge of pipe-line operation, without the detail that you finally figure out. In other words, to figure the exact capacity of a pipe line, you would require a complete survey of the terrain it crossed, and there are a dozen different factors that enter into it. But there are certain basic things that you can use to say that a 4-inch will do so much and a 6-inch will do so much under normal conditions.

Mr. HALLEY. You got that basic information in the course of your experience in Texas, did you not?

General PYRON. And other fields and a general knowledge of the oil business.

Mr. HALLEY. Over relatively flat areas and in relatively warm climates. Wouldn't that be true?

General PYRON. We still have some pretty good hills. The company I am with happens to have a pipe line through the Ozark Mountains and through the Alleghenies.

Mr. HALLEY. Were you considering that the problems in the Ozarks and the Alleghenies were equivalent to the problems in northern Canada?

General PYRON. Oh, no; not at all. There would be problems of transportation there that obviously wouldn't be present in the Alleghenies.

Mr. HALLEY. Isn't Senator Ferguson right in asking you whether you weren't giving a curbstone opinion?

General PYRON. As I say, it wasn't exactly what I would call a curbstone opinion.

Senator KILGORE. It wasn't the result of research, though.

General PYRON. There wasn't time for a great deal of research to be done on it.

Mr. HALLEY. Was it what you would call an informed opinion?

General PYRON. As good as an informed opinion of the general terrain and the country and generally what a 4-inch pipe line would do.

Mr. HALLEY. What did you know about the general terrain between Norman Wells and Whitehorse?

General PYRON. I have had available maps from those who have been in there. I have talked—

Senator KILGORE (interposing). You say you have been in there?

General PYRON. No, no; not until last summer. I have flown over it. I now know it. At that time, though, I had not been over it, but I had talked to many men who had been in there, who had flown over it, flown over there.

Mr. HALLEY. To whom had you talked who had been in there and had flown it?

General PYRON. Well, different hunters. I don't know whether I can tell you their names.

Mr. HALLEY. You mean fellows who had gone up there on a hunting trip?

General PYRON. Yes, sir; and flown over the site. They would go to Skagway, for instance, and then get a plane and fly over to maybe some lake in the mountains, and others would go over the Mackenzie and hunt on Mackenzie and then go from there to other ranges in planes.

Mr. HALLEY. Do you remember their names?

General PYRON. There was Johnny Suman, who was one of those who were in there. I think he was in there twice.

Mr. HALLEY. Let's take him. Over what terrain did he fly? What terrain did he describe to you?

General PYRON. He flew, I think, from Skagway across the Mackenzie and then back into the mountains on the other side.

Mr. HALLEY. Did he go into Norman?

General PYRON. Yes.

Mr. HALLEY. From Skagway to Norman?

General PYRON. He was the one who told me, I think in 1939, maybe the first part of '40, about the interesting trip he had in there.

Mr. HALLEY. How did he get into Norman; straight across from Skagway, or did he go up the Mackenzie and then down along the Mackenzie River?

General PYRON. I don't recall that exactly, whether he came in from Edmonton or from Skagway.

Mr. HALLEY. Of course, the pipe line was going to go right over the mountains, and you would have to get some information about the terrain the pipe line would be going over, wouldn't you?

General PYRON. If you wanted to make a detail map, make a mosaic of it, yes.

Mr. HALLEY. Without talking about a mosaic, whom had you talked to who had been over that very country that the pipe line was going to be laid over? Did you know the number of rivers and the width of the rivers and the height of the mountains?

General PYRON. No, sir. I don't think anybody knew all those details, Mr. Halley.

Senator FERGUSON. Then how could you tell that a 4-inch pipe would carry 3,000 barrels a day?

General PYRON. Just normally, on level ground, we would know that you could pump much more than that.

Senator FERGUSON. How much would you pump?

General PYRON. It depends entirely on the gravity of the oil.

Senator FERGUSON. Surely.

Mr. HALLEY. When Colonel Graham asked you that question about whether a 4-inch pipe line would do, how much time did you take to think before you answered?

General PYRON. Well, I didn't take days. I told him offhand, after looking at the maps and the mountain ranges designated on them.

Mr. HALLEY. You mean after he asked you, you went back and looked at the map?

General PYRON. I don't know. Probably it was right when he was in there. I don't recall now.

Mr. HALLEY. You just answered him in the course of a running conversation. Would that be it?

General PYRON. Just an informal conversation; yes, sir.

Mr. HALLEY. Aside from that pipe-line question, the only other subject, I take it, on which you ventured advice was the question of whether or not oil was available at the Norman field.

General PYRON. That was the principal thing they wanted to know from me.

Mr. HALLEY. With reference to that, you say that these people from the Standard Oil Co. were more optimistic in their oral statement than in their subsequent letter?

General PYRON. Yes, sir; that is my impression, especially this geologist. One geologist (his name was Walker) seemed to me to be a little more optimistic on the possibilities of the field than Mr. Bimel and the other men.

Mr. HALLEY. Taking first the oral statements, did they make you feel that there was a good chance of finding oil?

General PYRON. Yes, sir; I got the distinct impression from all of them that there was a reasonably good chance of getting a production of 3,000 barrels or more per day.

Mr. HALLEY. Did you think there was a reasonably good chance of getting 3,000 barrels of oil from which good aviation gasoline could be made?

General PYRON. We had assumed that the formations that had not been drilled in the same area would produce approximately the same type of oil.

Mr. HALLEY. Did they tell you anything about their experience in making aviation gasoline from the oil they had?

General PYRON. I don't recall that that was discussed in detail.

Mr. HALLEY. Was it discussed at all?

General PYRON. I don't recall that. It was known that they were making what was considered a good aviation gasoline. We used as low as 65 octane in the early days in the planes, and 80 octane and along in there.

Mr. HALLEY. Did you know that they were importing 60 percent of the ingredients of that aviation gasoline?

General PYRON. I don't know. That wasn't mentioned at this meeting.

Mr. HALLEY. You didn't know that?

General PYRON. No.

Mr. HALLEY. Would that have affected your judgment?

General PYRON. No, sir; it would not, because with that type of refinery you would expect them to have to add a considerable amount. In other words, it is just the simplest type of skimming plant you can imagine.

Senator KILGORE. Is that the type of plant you have up there, just a skimmer?

General PYRON. A skimmer. Nothing but most of the—

Senator KILGORE (interposing). You mean the one you are building?

General PYRON. No, no. I am talking about the one that is there at Norman.

Mr. HALLEY. Would that information have raised a question in your mind as to whether or not the crude oil would have been satisfactory for making aviation gasoline?

General PYRON. You mean the fact that they had to ship in products?

Mr. HALLEY. Yes.

General PYRON. No, sir; it would not.

Mr. HALLEY. Are you familiar with the fact that the Quartermaster made a report on this Canol project recently?

General PYRON. I don't think I am familiar with it.

Colonel FRIEDLICH. Off the record, I don't think General Pyron recognizes it by the description of a report. If you will show him the document, I think he has seen it.

Mr. HALLEY. Would you be surprised to know that the Quartermaster found that the quality of the gasoline produced doesn't fit air-force needs very well?

General PYRON. I don't know why he would make a statement like that, because I, personally, was in a DC-3, flew that country, and actually used it in flying that impenetrable terrain up there for 2 or 3 days. I know a little about airplanes and motors myself, and we had no trouble with it.

Mr. HALLEY. You differ with the Quartermaster Corps?

Colonel FRIEDLICH. Would you read the statement, in fairness to the witness, before he differs with it?

General PYRON. I don't understand why he would say it.

Mr. HALLEY (reading):

However, the quality of the gasoline produced does not fit air-force needs very well.

(The report referred to was marked "Exhibit No. 1103" and is on file with the committee.)

General PYRON. It wouldn't fit a combat plane, that requires 100-octane; no. You could fly it, but it wouldn't—

Colonel FRIEDLICH (interposing). Do you mind if I look at that?

Senator KILGORE. Is that talking about the present plant, the skimming plant?

Mr. HALLEY. They are talking about the present plant.

Senator KILGORE. The one at Norman Wells.

General PYRON. That plant doesn't make to exceed 87-octane, and 87 octane can be used, but it is not the best type for a combat plane.

Mr. HALLEY. Wouldn't you have gotten that impression from what you were told, if you had been told by the Standard Oil people that they weren't able to make aviation gasoline without importing 60 percent of the ingredients?

General PYRON. No, sir; it would have had no influence at all, Mr. Halley, for this reason: that they had the simplest form of refinery, which could not crack gasoline and which could not bring out the lighter fraction. Therefore, the type of gasoline they could make had to have an addition even to build it up to 80-octane or 87, and that would be normal anywhere. I don't care if it was in the United States, if you had that type of plant you would have to put in light components.

Mr. HALLEY. I should like to ask you, General, if you would now look at the letter which the Standard Oil people sent to the War Department, addressed to General Carter, and see whether or not in your opinion that letter takes a different position from what the Standard Oil people said orally. Exhibit B-6, letter dated May 2 [paper handed to the witness].¹

(Discussion off the record.)

General PYRON. Yes; I remember that letter.

Senator FERGUSON. You are talking about the LeSueur letter?

General PYRON. The LeSueur letter of May 2, 1942.² I would say that the general tenor of that letter, as applied to production, is more pessimistic than the information that we gained from their other employees, the geologist and production men. However, I interpreted this letter from them that an officer of this company just wanted to put out as a protection the worst possible side of the picture. If the thing shouldn't develop, if the production shouldn't be found, then he didn't want any criticism attached to his company.

Senator FERGUSON. He was going to sell oil at an enormous price. Why wouldn't he want to sell oil? Did you know how much they were going to pay this company for oil?

General PYRON. I didn't know there was any enormous price.

Senator FERGUSON. It amounts to about \$10 a barrel. Wouldn't it? We put in the line and put in the refinery, drill the wells, and all that. It is the same as a royalty basis. We then pay them \$1.25 a barrel, and we get only \$1.17 a barrel for oil down here.

General PYRON. The price of oil there I don't think could be compared to the price of oil in this country.

Senator KILGORE. Of course not.

General PYRON. Because of the added cost. In other words, these things, instead of being \$1 a barrel—

Senator FERGUSON (interposing). They have no cost. The oil is there. We drill and get it and put in the pipe line and refinery, and then give them \$1.25 royalty, whereas we pay only \$1.17 for oil down here, where a man has to put his own pipe line in, his own refinery in, and all.

General PYRON. I didn't make the contract. I wasn't consulted about the contract. I don't think it could be classed as a royalty.

Senator FERGUSON. What is it?

General PYRON. In other words, they went there, and in some of these reports I recall they estimated at that time that they had a reserve of 3,000,000 barrels. That was their oil. They discovered that and spent a lot of money developing that.

Senator FERGUSON. That letter doesn't say they have 3,000,000, does it?

General PYRON. Some of these reports, I think.

Colonel FRIEDLICH. I think that letter does mention it, doesn't it?

General PYRON. Two and a half or three million barrels, somewhere. Whatever it was, that was their oil that they had discovered at considerable expense, and as I understand it, for the wells they had developed they were to be paid so much, and then there was a certain amount set aside to reimburse for materials and labor.

¹ Exhibit No. 1101, appendix, p. 9855.

² Ibid.

Senator KILGORE. Two prices. They were to be paid so much a barrel for the oil from the three or four wells they had developed. They then were to be paid \$1.25 per barrel for the oil from wells drilled and prospected by the United States Army, at the well, all costs to be paid. They didn't even have any operating costs. After they had been paid that for 2,000,000 barrels, I think it was, or some figure of that kind, then a portion of the \$1.25 was to be set aside to be used to liquidate.

Senator FERGUSON. But they were to get 50 cents.

Senator KILGORE. I say, a portion of it. They still got 50 cents a barrel.

There are a few questions I should like to get in right now for this record, because I have been puzzled ever since I got into this thing by a very vague situation here. It appears that some informal discussion started down there. As to who started it or how it originated nothing appears here. Whoever brought Canol into the picture doesn't appear. General, I should like to see if you could answer these questions.

When was this development in Canada first brought to the attention of the War Department or anybody connected with the War Department?

General PYRON. That is something I can't answer.

Senator KILGORE. Do you know by whom it was brought?

General PYRON. No, sir; I do not.

Senator KILGORE. Do you know to whom it was brought?

General PYRON. No, sir.

Senator KILGORE. What official of the War Department received this information or was propositioned, as we might say?

General PYRON. I do not know, sir.

Senator KILGORE. It looks to me as if he were propositioned.

(Discussion off the record.)

Senator KILGORE. Who is Colonel Graham?

General PYRON. Colonel Graham is special adviser to the Secretary of War.

Senator KILGORE. Is he a civilian or an officer?

General PYRON. He is a civilian; a former Regular Army officer, retired. He is acting as special adviser to the Secretary of War, the Under Secretary, and General Somervell, commanding general of the service forces.

Senator KILGORE. Adviser in what particular phase?

Colonel FRIEDLICH. May I say one thing, Senator? You asked me if I knew. I don't know when it first came to the War Department. I do know—I think the month was January of 1941—that there was a letter written by Stefansson to General Marshall, enclosing some of the articles that you may be speaking of. How long before that it was known, I don't know. I haven't seen that.

Senator KILGORE. What particular phase of special work does Colonel Graham do?

General PYRON. That I couldn't answer.

Senator KILGORE. Do you know, Colonel?

Colonel FRIEDLICH. I can tell you.

Senator FERGUSON. He is not a petroleum engineer.

Senator KILGORE. He is not a petroleum man, is he, from the testimony?

Colonel FRIEDLICH. I read his testimony, too. I didn't come up with him, Senator. I think he said he had been in the oil business, producing and management. He is a mining engineer. I don't think he would claim to be a petroleum engineer. He is now dean of the Kentucky School of Mines, or whatever they call it, the dean of engineering. He was in charge of all lines of communication, transportation overseas, in the last war. His job in the War Department is, I know, to advise General Somervell, as the commanding general of the A. S. F., on problems in connection with transportation and, I think, a lot of other things, but I know that. He also advises Judge Patterson. I think his title is special assistant to the Secretary of War, but he is really an adviser of Judge Patterson and particularly of General Somervell.

(Off the record.)

Mr. HALLEY. If we can get back to the letter from Mr. LeSueur, if the information before you were only the information in that letter, would you still think that the project should have been undertaken?

General PYRON. Yes, sir. In the face of that, and in the face of the information presented by the geological maps, the drill holes, I would still have said that we were justified in drilling the nine wells that were initially planned to develop. After all, that was the only way you could get the final answer.

Senator KILGORE. How many wells have we drilled?

General PYRON. I think there are perhaps in the neighborhood of 30 drilled up to now.

Colonel FRIEDLICH. Thirty-two.

Senator KILGORE. We are talking about nine wells. Why the extra wells?

Senator FERGUSON. Still drilling.

General PYRON. The nine wells were planned to be sure the 3,000 barrels were there. This was the thought: If they couldn't assure over a period of time 3,000 barrels, then there would have been no pipe line and no refinery.

Senator KILGORE. Right along there, General, you are exercising sound business judgment with reference to the Army. It is the excessive drilling there that I am asking the question about. Then we just kept on drilling?

General PYRON. It was suggested that nine wells on that little structure there probably would tell the final story as to whether you had 3,000 barrels or better.

Senator KILGORE. What particular end of Gulf Refining did you handle with them? Were you in the field, in the drilling end, or in the transportation end?

General PYRON. Primarily production and transportation. I was vice president in charge of production and transportation.

Senator KILGORE. Did you let your wells to contract or did you drill them with your own tools?

General PYRON. Did both.

Senator KILGORE. You did both?

General PYRON. Yes, sir.

Senator KILGORE. What price were you paying in Texas for drilling wells in 1941?

General PYRON. It would depend entirely on the field, the distance from transportation.

Senator KILGORE. I know.

General PYRON. It varied all the way from \$2.50 to \$10 a foot in some.

Senator KILGORE. What depth?

General PYRON. That varied from a few thousand feet to 10 or 12 thousand feet.

Senator KILGORE. You know the price goes up as the risk increases.

General PYRON. That is right.

Senator KILGORE. In other words, the deeper you go, the higher the footage always, because your risk increases; isn't that right?

General PYRON. Yes, sir.

Senator KILGORE. Don't you think that a man who would make a net profit of \$2.90 or \$2 a foot, without investing any capital, with no risk, would make an awful profit? For 100 wells, wouldn't that be rather an excessive profit for the contracts that you let down there?

General PYRON. It would probably be an excessive profit in Texas. I wouldn't say it would be up in that country.

Senator KILGORE. There was no risk involved. In other words, we furnished the equipment, and there was no risk entailed at all. You furnished all the tools, transported them in, and everything else, and then just gave the man approximately \$2.90 a foot for lending his name to the operation of assembling them.

Mr. HALLEY. General, in connection with the Gulf Oil Co., in determining the prospects for drilling, did you make that determination by yourself or did you have a staff of advisers?

General PYRON. We had geologists, geophysicists, and people.

Mr. HALLEY. Who made the determination of where drilling should take place, you or other people?

General PYRON. Well, usually I made the final decision on the determination to drill.

Mr. HALLEY. Based on expert advice?

General PYRON. On expert advice and my own knowledge of conditions.

Mr. HALLEY. But you did always have expert advice?

General PYRON. Well, in most cases, yes. Sometimes we didn't have time when the competition was strong. We gambled and we made trades and drilled wells on very meager information. I have drilled many of that kind.

Mr. HALLEY. Did you have expert advice in connection with the Canol project?

General PYRON. These geologists and production men who had been on the ground I consider and they are considered experts in the industry.

Mr. HALLEY. But they advised against it, did they not?

General PYRON. Not the men with us. They didn't particularly advise against us. They just warned of the hazards and said that they couldn't assure it. And under similar conditions, there is no geologist who could assure you that you had 3,000 barrels or 10,000 there until—in other words, there is only one thing, Mr. Halley, that would assure you of that, and that is to drill some more wells there on that structure. All the geologists they had up there and could get couldn't help you.

Mr. HALLEY. I think in fairness I should tell you that the testimony before the committee is that the letter was written in consultation

with the people who were down at the conference, and at least one of the men who was at the conference has sworn that the letter is identical with what was said at the conference. Certainly it was not written by an executive sitting in an office and without reference to the people you consider the experts.

General PYRON. That is right, and they stated in the conference that they couldn't assure us there were 3,000 barrels. One of them said he felt reasonably sure, but we were told that they couldn't assure us, and I understood that.

Mr. HALLEY. The letter goes a lot further than that, does it not?

General PYRON. That is right.

Mr. HALLEY. It is downright pessimistic.

General PYRON. I would say it was on the pessimistic side, but I would reiterate that, in the face of information we had, even that letter wouldn't have deterred me in saying the thing was worth at least a trial to see if there were 3,000 barrels there.

Mr. HALLEY. Of course you know that the directive did more than give it a trial. The directive set the whole thing in motion: the refinery, the pipe line, a huge drilling program, an exploration program, storage, and everything else. You know that.

General PYRON. By the time that got in motion, we knew, of course, that there was more than we had originally contemplated.

Mr. HALLEY. Isn't it a fact that the pipe was purchased immediately and ordered shipped up immediately?

General PYRON. It probably was, and that had to be, Mr. Halley, for this reason—

Mr. HALLEY (interposing). I am not going into the other matter, that it has to be. I am going into the question of whether or not you put this thing in motion after you had that definite information. I think the answer is definitely that you did not have definite information at the time you purchased and shipped the pipe.

Colonel FRIEDLICH. Won't you let him finish his answer?

General PYRON. I wanted to answer it in this way: that the pipe and the equipment for doing this drilling, a part of the pipe, at least, for the east end of the line, had to be removed from rail head up the Great Slave River and through the lakes and down Mackenzie to this point. We knew that had to be done in the summertime, so in scheduling it, if it was to be moved that summer, the procurement had to be made and had to be assembled. If it failed, if we couldn't have proved that there was production, there probably would have been some pipe and machinery up there that wouldn't have been used; but in wartime you have to schedule these things to get them there. In other words, you can't look at it as a commercial proposition, and you can't schedule it as a commercial proposition. Then you might have waited. Commercially, you probably would have waited until you drilled your 9 or 10 wells.

Mr. HALLEY. You would have had time for you to go out and consult a couple of experts on geology.

General PYRON. It wouldn't have done you a bit of good. All the experts in the world wouldn't have done you any good in that situation. There wasn't anything that would prove it or disprove it except to drill.

Mr. HALLEY. Why did you bring down the Standard Oil people?

General PYRON. We brought them to get the original information.

We did not have the detailed information on the production, the well pressures, the logs, and cross sections of the wells.

Mr. HALLEY. Did that make any difference, if you were going to go up and drill, anyway?

General PYRON. No decision was made until we had this information. We didn't have enough.

Mr. HALLEY. Wouldn't it have been advisable to let an expert look at that information?

General PYRON. Here were two experts who brought it in. I don't class myself as an expert, but it certainly looked like a possible proposition to me.

Mr. HALLEY. There were some experts available if you had sought them out, some American experts who could have been asked.

General PYRON. If we had had all summer to make the decision in, if we could schedule a war so we could do these things, we might do them a little better, and we might arrive at better decisions.

Mr. HALLEY. You know that Colonel Graham fooled around with it for 3 months prior to the time that you made this decision.

General PYRON. I don't know how long he figured on it. I don't know what he did except in a few informal conferences with me.

Mr. HALLEY. How long would it have taken to have gotten a couple of experts to look at this data? Two days?

General PYRON. Well, I say, as far as experts are concerned, they couldn't have said any more than I or these other fellows.

Mr. HALLEY. When you go into a drilling program for the Gulf Oil Co., you certainly consult experts. You don't make up your mind yourself, do you?

General PYRON. Sometimes I do, if it is a quick decision. I have made them, and plenty of them.

Mr. HALLEY. If you have 2 days to catch an expert and have him look at it, do you do it in connection with your Gulf Oil business?

General PYRON. I have made them in an hour, made a decision in an hour.

Mr. HALLEY. What I am saying is, where you have time to get hold of an expert and have him look at the data you have, you do it.

General PYRON. Normally you do in peacetimes, but I say, Mr. Halley, we can't do things in wartime that we do in peacetime.

Mr. HALLEY. Why can't you? Why couldn't you get an expert in there? It would have taken just the length of time to fly in to Washington.

General PYRON. I don't know why they didn't. They probably considered that this information was sufficient—

Mr. HALLEY (interposing). You are the one who must have considered it.

General PYRON. To justify the initial drilling.

Mr. HALLEY. Who is the "they" you are now referring to?

General PYRON. I beg your pardon?

Mr. HALLEY. Who is the "they" who probably considered it?

General PYRON. They had this information from the people who owned it.

Mr. HALLEY. Who are the "they"? What do you mean by "they"?

Senator KILGORE. Whom do you mean by "they"?

General PYRON. The Imperial Oil Co. geologist and production man.

Mr. HALLEY. You are relying now completely on what the Imperial people told you?

General PYRON. No, sir.

Mr. HALLEY. You are not? Who else do you mean?

General PYRON. And the general knowledge we had——

Senator KILGORE (interposing). No. What he means is, whom do you mean by "they"? They relied on Imperial Oil Co. and this general knowledge. Who relied on it?

General PYRON. I assume whoever made the final decision relied on perhaps what I said.

Senator KILGORE. Whom did you rely on?

General PYRON. I relied on my general knowledge of the country, plus the information that was furnished at that meeting.

Colonel FRIEDLICH. You have been in the oil business all your life, haven't you; all your business life?

General PYRON. I would say about 38 years.

Senator KILGORE. Wait just a second. General, let's put this down your alley, then, from your business experience. If you, as president of Gulf Oil Co., had a proposal put up to you and you kept it on your desk for 3 months and then asked your board of directors for an immediate decision, would that be the normal course of business with you; or, if you were going to have that on your desk for 3 months, with planes available and men available, wouldn't you fly an engineer in to look the ground over and fly him back out again in a hurry and fly enough samples out to check up your analysis during those 3 months so that you wouldn't put it up to a group of people, for instance, to your board of directors, for a snap judgment when you had had 3 months to check it? In other words, if you had 3 months' time to check it in, you would check it, wouldn't you, as president of the Gulf Oil Co.?

General PYRON. Oh, yes; if I had 3 months' time.

Senator KILGORE. You would absolutely have a check by the best man you could get hold of, if it involved millions of dollars. You say you make snap judgments. Surely, every man in the oil business has to make snap judgments sometimes——

General PYRON (interposing). Yes, sir.

Senator KILGORE. But you don't go in that deep, and you never exercise snap judgment when you can avoid exercising snap judgment, any more than a general in command of an operation in the field would commit his reserve without studying the situation pretty carefully and getting some reports from his G-2 and his G-3 and everybody else before he would commit that reserve. Of course, he might be up at the front line himself and see where he could shoot it in on snap judgment, but you are not in the front line.

The question he is asking is this: Colonel Graham apparently had this proposition before him for 3 months, and apparently no detailed investigation was made of it until these conferences were had.

Colonel FRIEDLICH. Senator, I don't think anybody can argue with the proposition that you put up, but I think this committee is interested in what happened perhaps more than method. If we had called in 10 experts, or 20, or any number you want to choose of the best there are——

Mr. HALLEY (interposing). Do you want this on the record?

Colonel FRIEDLICH. I would just as leave.

Mr. HALLEY. I think, if you are going to continue to make statements, you ought to be sworn as a witness.

Colonel FRIEDLICH. That is up to you.

Senator KILGORE. I think so, too.

Colonel FRIEDLICH. That is all right. I will put it off the record, or you can swear me, whichever the committee wants, or I won't make a statement.

Senator KILGORE. Go ahead, if you want to make a statement.

Colonel FRIEDLICH. I would just as leave put it off the record. I am not a witness here.

(Off the record.)

Mr. HALLEY. I have one more question I would like to ask on the record. You mentioned the fact that you thought now we could step this production up tremendously and that we could use all we produced in the future; is that correct, with respect to Norman Wells?

General PYRON. If it could be. Of course, it would take the required additional pipe lines and refining facilities. It could be used advantageously if it were available today or anytime during the war.

Mr. HALLEY. You think it is a good idea to increase that production?

General PYRON. I do, sir, and I am equally as strong in saying that I think it is to the interest of the United States, to the interest of the armed forces of the United States, that that project go ahead and this oil be made available.

Mr. HALLEY. Then you would produce all the oil you could produce at the wells first; is that right?

General PYRON. There would certainly be a limitation on it. You wouldn't want to go all-out if you had 50,000 barrels or 100,000. You probably wouldn't want to do that.

Mr. HALLEY. How many would you want?

General PYRON. I don't know. It just depends.

Mr. HALLEY. Ten thousand barrels a day?

General PYRON. Ten or fifteen or twenty or whatever.

Senator FERGUSON. And even today go to the expense of moving more machinery, more pipe lines, and all up there?

General PYRON. Yes, sir; I would.

Mr. HALLEY. You would then increase the capacity of the pipe line and of the refinery; is that right?

General PYRON. Yes, sir.

Mr. HALLEY. Can you explain to the committee why the War Department removed the Houdry unit from the refinery and cut down its capacity just recently?

General PYRON. Yes, sir. It was primarily at the request of the Petroleum Coordinator for War.

Mr. HALLEY. You didn't consult him in the first place?

General PYRON. We didn't consult him initially, but he has been advised.

Senator FERGUSON. Why are you paying any attention to him now?

General PYRON. He said that this unit that had been ordered by the War Department was vitally needed in a plant over here in Ohio, which could be gotten on stream quicker than that could and would turn out more gasoline per day, and that was the primary reason for cutting out the Houdry process.

Mr. HALLEY. That is good enough. That is the answer.

Senator FERGUSON. All right.

Mr. HALLEY. I have no further questions.

Senator FERGUSON. That is all, then.

Colonel FRIEDLICH. May we have the letter, the memorandum? I would like to get it in the record here.

Mr. HALLEY. Which memorandum is that?

Colonel FRIEDLICH. The one I just gave you, the memorandum of November 19 on the subject Canol project, signed by Brig. Gen. H. L. Peckham. May that be an exhibit?

Mr. HALLEY. Surely.

Senator FERGUSON. It will be put in the record.

(The memorandum referred to was marked "Exhibit No. 1101" and appears in full in the text below.)

SPQKT 463.7

Under Sec. of War.

NOVEMBER 19, 1943.

MEMORANDUM FOR THE OFFICE OF THE UNDER SECRETARY OF WAR

Attention: Lt. Col. Herbert A. Friedlich, Room 3E739, The Pentagon, Washington, D. C.

Subject: Canol project.

1. As the Whitehorse refinery is presently being constructed, it will be unnecessary to import any petroleum products for the manufacture of 100-octane gasoline. The refinery is comprised of two stages. The first stage will produce basic straight-run naphtha and unsaturated hydrocarbons and the second stage converts these unsaturated hydrocarbons into high-octane blending alkylates. By mixing these aviation gasoline products of the two stages and by adding 4 cubic centimeters of tetraethyl lead per gallon it is possible to produce 100-octane gasoline. It has been calculated that while processing 3,000 barrels per day of Norman Wells crude oil, 479 barrels per day of this 100-octane gasoline will be produced.

2. Page 26 of the Truman committee, November 2, 1943, Canol project paper, states: "The following comment was taken from the files of the Construction Division of the Corps of Engineers: It appears that the Whitehorse refinery would only manufacture the base naphtha for aviation gasoline. It is proposed to import the remaining 50-60 percent of the constituents (150-octane alkylates)." There is obviously an error in this statement. It would appear that the statement was made about the Imperial's Norman Wells refinery rather than about the Whitehorse refinery. The above quotation has not been found, however, a similar one occurs in a letter from Mr. R. V. LeSueur, vice president of the Imperial Oil, Ltd., to Brig. Gen. A. H. Carter, May 2, 1942, as follows: "Distillate data with regard to Norman crude have already been furnished by us and no doubt have been thoroughly studied by your staff. We should, however, point out that our refinery at Norman is of the low-pressure-distillation type and with this equipment only 17 percent of each barrel of crude can be converted into aviation base stock and that it requires 40 percent of this base stock and 60 percent of hydrocodimer as well as 4 cubic centimeters of lead to produce 100-octane aviation gasoline." The hydrocodimer referred to is a type of alkylate.

For the Quartermaster General:

H. L. PECKHAM,
Brigadier General, Quartermaster Corps,
Assistant.

(The committee adjourned at 5:20 p. m.)

INVESTIGATION OF NATIONAL DEFENSE PROGRAM

MONDAY, NOVEMBER 22, 1943

UNITED STATES SENATE,
SPECIAL COMMITTEE INVESTIGATING
THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

The committee met at 10:05 a. m., pursuant to adjournment on Friday, November 19, 1943, in room 318, Senate Office Building, Washington, D. C., Senator Harry S. Truman, presiding.

Present: Senator Harry S. Truman (chairman), Ralph O. Brewster, Joseph H. Ball, Harley M. Kilgore, and Homer Ferguson.

Present also: Representative Leon H. Gavin; Hugh A. Fulton, chief counsel; Rudolph Halley, executive assistant to chief counsel; H. J. Robinson, investigator.

The CHAIRMAN. The committee will come to order. Mr. Secretary, I think you had a statement you wanted to make to the committee, and I will appreciate it if you will proceed.

Secretary ICKES. Yes; if I may.

STATEMENT OF HON. HAROLD L. ICKES, SECRETARY OF THE INTERIOR, PETROLEUM ADMINISTRATOR FOR WAR

ATTITUDE OF PETROLEUM ADMINISTRATOR FOR WAR TOWARD PROJECT

Secretary ICKES. Mr. Chairman and gentlemen, in view of the fact that the subject before you has evoked some past differences of opinion, I hope that you will permit me to note for the record that I am not here as a volunteer, but as a witness summoned by your committee. Perhaps I should also note that my knowledge of the subject is necessarily limited, inasmuch as the Canol project is not an undertaking of the Petroleum Administration for War, but of the War Department. For these reasons, I believe that it may be best if I simply present to you a chronological report of the communications that have passed between my office and that of Secretary Stimson.

It was during the spring of 1942 that, by chance, members of the staff of the Petroleum Administration first heard reports to the effect that the Army was planning the construction of a crude-oil pipe line from Fort Norman to White Horse, Canada, as well as the installation of an aviation gasoline refinery at the latter place.

Our first impulse was to discount the reports, because we assumed that, if any project of the kind were being considered, we would have been officially informed of it. The reports were subsequently

confirmed, however. Thereupon, in the absence of Secretary Stimson, I got in touch with Under Secretary Patterson and asked him concerning the proposed project. He supplied me with a report in a letter dated May 27, 1942.

My next step was to write to Secretary Stimson, on June 3, 1942, expressing my regret that the Army had not consulted with my office on a matter which was of such vital concern to us. I said to Secretary Stimson, in part [reading from Exhibit No. 1106]:

You will agree, I am sure, that if projects of this character are undertaken without our knowledge, we cannot hope to discharge the responsibility that is imposed upon us. The President's letter of May 28, 1941, is quite clear on that point, and with the thought that you may wish to issue instructions to your forces which will prevent the possibility of any recurrence of situations such as this, I enclose for your convenient reference a copy of that letter. Permit me to call special attention to the provision for "antecedent advice" from the various departments and agencies of Government.

From the information that had come to me, my conclusion was that the project was conceived in an effort to solve the problem of providing fuel for Air Force operations in the area. We, in the then Office of Petroleum Coordinator, agreed fully on the necessity of meeting this problem, but we did not believe that the solution proposed by the Army was the most desirable one. In my letter of June 3 to Secretary Stimson, I said [reading from Exhibit No. 1106]:

The terrain between Fort Norman and Whitehorse, a distance of approximately 500 miles, is virtually unknown territory, with mountain ranges at right angles to the direction of the proposed pipe line. The general climatic conditions are rigorous with great extremes of temperature and devastating flood conditions in the springtime. These conditions are highly unfavorable to construction work and create operating hazards which would seriously jeopardize the uninterrupted delivery of crude oil at the Whitehorse terminal.

Entirely apart from the question of the practicability of pipe-line operations between Fort Norman and Whitehorse is the difficult problem of procuring the necessary materials and equipment for an aviation gasoline plant. I do not know of any existing plant in the United States which might be transferred to Whitehorse for this particular service. The new materials and equipment which would be required could be made available only after considerable highly specialized process-design development work.

As an alternative to this project, I would suggest consideration of transporting the desired petroleum products from California via the Inland Passage to Skagway, and then to protect storage at Whitehorse and other strategic points by way of tank car or product pipe line. The expenditure of specialized labor and critical materials by this method of supply would be but a fraction of that for the proposed project and, in my opinion, the availability of the required products at the desired points would be better secured. It would seem to be preferable to build up stocks of products at these strategic points in Alaska and Canada rather than to depend upon the uninterrupted operation of production, pipe-line, and refining facilities under the adverse geographic and climatic conditions that would prevail.

To make a specific comparison of one phase of this operation, one average-size tanker could in four trips supply as much aviation fuel as could be manufactured in this proposed 3,000-barrel refinery during the year. This assumes maximum production through the utilization of a catalytic cracking unit, as well as an isomerization unit, an alkylation unit, and other specialized ancillary equipment.

May I suggest to you the desirability of your forces conferring without delay with the technicians of this office and availing themselves of their counsel, to the end that the most effective and practical method may be adopted to meet the need of the Army in this particular situation. I am satisfied that our staff can be of assistance, and I am anxious to further in any way that I can the objectives of your Department.

The next item of correspondence was a letter from Acting Secretary Patterson, expressing regret that—[reading from Exhibit No. 1107]:

exigencies of the military situation and the need for immediate decision and the greatest speed did not permit consultation with your office before authorization of the project.

The letter further observed that—

work is now well under way by contract and the employment of Engineer troops. It is the desire of the War Department that the project be carried to completion without delay.

I wrote again to Secretary Stimson on June 22, expressing my full agreement as to the need for adequate supplies of petroleum products in the Alaska area. For that very reason, I again urged my alternative proposal for the shipment of products from California to storage bases in Alaska. In support of this suggestion, I once more called attention to the operating hazards of the pipe line. In my letter I said, in part [reading from Exhibit No. 1108]:

From information at hand, we estimate that the refinery could not be put into operation until April or May of 1943 at the earliest. Added to this are the uncertainties dependent upon the enormous and adventurous task of constructing the pipe line and the uncertainty in drilling and completing producing wells in an area like Fort Norman where geological conditions are not entirely favorable.

From these speculations it develops that the flow of oil is not likely to achieve the proposed rate of 2,000 to 3,000 barrels a day until the spring of 1943, and even then considerable time must elapse before reasonable stocks could be built up.

Mr. FULTON. Mr. Ickes, right at that point could I ask you whether they have achieved even those estimated dates that you had in mind?

Secretary ICKES. No.

Mr. FULTON. So that it would probably be many months later than even that time?

Secretary ICKES. I think probably it will be; under the most favorable circumstances they will probably be a year late, a year to a year and a half.

Mr. FULTON. And that would be before a single drop of oil would run through the pipe line, would it?

Secretary ICKES. Through this pipe line, yes.

I continue from my letter [reading further from Exhibit No. 1108]:

As a safeguard, storage capacity could be made available at the rate of, say, 100,000 barrels a month, with the first installation completed within 3 or 4 months' time. Such a storage project could make available some 800,000 barrels of petroleum products by May 1943, at which time the pipe line-refinery project would, under the most favorable conditions, just be coming into operation at the rate of 60,000 to 90,000 barrels a month. Thus there would be a net gain of 800,000 barrels by adopting the storage project. This would represent eight voyages of a tanker, a relatively restricted sea movement which it seems reasonable to expect that our naval forces could amply protect, especially in view of the fact that both the Navy and the Canadian Government are preparing storage bases in this general area.

Mr. FULTON. On that, Mr. Ickes, if they couldn't protect the shipment of the oil, could they protect the shipment of the materials to build the pipe line?

Mr. DAVIES.¹ The materials went in another way.

¹ Ralph K. Davies, Deputy Petroleum Administrator for War.

Secretary ICKES. The materials went in another way.

Mr. FULTON. Only part of them, I believe.

Secretary ICKES. I don't know. Isn't that true?

Mr. DAVIES. Yes. The pipe line materials went in another way.

Senator FERGUSON. The refinery materials went in by way of Skagway, didn't they?

Mr. DAVIES. Yes.

Senator FERGUSON. Isn't that the only way they could get them into White Horse?

Secretary ICKES. I imagine so.

Mr. DAVIES. As far as the refinery is concerned?

Senator FERGUSON. Yes.

Secretary ICKES. I concluded by offering once more the services of my staff "in any matters connected with petroleum supply in all its phases." I suggested that "by taking full advantage of all available experience and facilities, such projects might be expedited."

On July 7, 1942, I was pleased to receive a letter from Secretary Stimson, informing me that further study had developed the desirability of adopting my suggestion for supplementary facilities by way of Skagway. He stated that the Chief of Engineers had been authorized to build, with materials on hand, a 4-inch pipe line between Skagway and Whitehorse, with necessary storage, and to arrange for barge movement of gasoline between Prince Rupert and Skagway. He concluded [reading from Exhibit No. 1109]:

Certain commitments, including the laying of pipe between Norman and Whitehorse, will be deferred pending results of the drilling of additional wells in the Norman area.

I wrote on July 20 to Secretary Stimson, expressing my relief that he was going to adopt my suggestion for moving oil from California to Whitehorse via Skagway. I am very glad to be able to say that the pipe line from Skagway to Whitehorse was built, as I urged, and that it has subsequently been freely acknowledged that it proved to be a facility of very great importance in maintaining operations in the area. At the time when I proposed the Skagway-Whitehorse pipe line, I also suggested that this would provide an interim period during which additional wells could be drilled at Fort Norman, and thus give a more accurate gage of the volume of oil reserves there. To that end, I recommended that a competent petroleum engineer be sent to observe and report upon the work, and offered to assign one of our own engineers. I ventured that, with his reports in hand, we would be able to advise the Army as to the likely supply of crude that might be available. We could also offer suggestions for the building of the pipe line, if we had in mind the reserves back of it and the type of crude to be transported.

On July 31 Secretary Stimson wrote to me, stating that the War Department was glad to accept our offer to send an engineer to report on the Fort Norman development work. Two weeks later—on August 15—Mr. Davies, the Deputy Petroleum Administrator (then Deputy Coordinator), wrote to Secretary Stimson to say that we had arranged for the services of Mr. Glen F. Ruby, former chief geologist of the Hudson Bay Co.

It was on September 5 that I heard again from the War Department, through a letter from Acting Secretary Patterson. In this communication he notified me [reading from Exhibit No. 1113]:

I now wish to inform you that several new wells have indicated production possibilities sufficient to justify resumption of the original project. This department is therefore proceeding to lay a pipe line from Norman to Whitehorse, and to construct a refinery at Whitehorse.

Inasmuch as Mr. Ruby had not yet had the opportunity to analyze the production tests and make his report, I wrote again to Secretary Stimson on September 28, recommending that work on the pipe line and the refinery be suspended pending the submission of that report.

In this same letter, I inquired as to whether the War Department still planned to use cracking stills, from existing plants in the United States, for its refinery at Whitehorse. I pointed out that, if this were the intention, the choice of the plant would be important to us, inasmuch as it would directly affect our "quick butadiene" program and also certain important foreign projects that were under consideration.

I noted [reading from Exhibit No. 1114]:

To manufacture 100-octane aviation gasoline, thermal cracking is but one of a number of processes which may be used. The selection and coordination of these processes are of primary concern to my office in connection with the aviation gasoline production program, both in this country and overseas. Our well-known objective is to minimize the amount of steel that is required for the purpose. To this end, I should be interested in knowing your plans for this refinery.

Secretary Stimson replied to me on October 12, saying that the work under way was of a preparatory character and that it was not thought that extensive construction would go forward before there had been a definite determination as to the possibilities of the Norman field.

Subsequently, I received Mr. Ruby's report and, on October 29, sent a copy of it to Secretary Stimson, with an accompanying letter in which I commented that this report caused us to conclude that the pipe line and refinery were not justifiable, even as an emergency project.

I am aware that as a result of subsequent development there is now indicated a possible reserve of several times Mr. Ruby's earlier estimate. In fact, he said in his report that, within 20 miles of the Norman Wells field there were 3 other promising structures, which he recommended be tested. It was for this reason that I said to Secretary Stimson in that October 29 letter that we concurred in the recommendation for the testing of these structures, and I added [reading from Exhibit No. 1116]:

The discovery of major reserves of petroleum in these structures might place a different complexion upon the entire project.

On November 12, Secretary Stimson acknowledged my letter of October 29 and the report by Mr. Ruby.

On December 9, Acting Secretary Patterson wrote to me, commenting on the Ruby report. He said that, since the production of 3,000 barrels daily from the Norman Wells field was not assured, the project was considered to be fully justified. He added that the pipe line project was considered entirely practicable by the Army engineers and by the consultants engaged on the project; and that the considered

opinion of all concerned was that the characteristics of the crude would permit year-round operation.

There was a further letter from me to Secretary Stimson on December 9, 1942, in which I discussed at some length the intricacy of the wartime oil job, the need for expertness in the handling of this job, the high qualifications of the men whom we had enlisted to staff the Petroleum Administration, and the desirability for cooperation between our office and the War and Navy Departments. I will not quote from this letter, inasmuch as it might be interpreted as controversial. Secretary Stimson replied on January 20, 1943, setting forth his own views in the matter of jurisdiction, and maintaining that the War Department was fully justified in proceeding as it did in the Canol project.

And that, gentlemen, summarizes the discussions between the War Department and the Petroleum Administration with reference to Canol. In brief, the War Department favored the project; our office recommended against it, believing that a very large amount of time, money, critical materials, and manpower could be saved if our alternative proposal were adopted—the movement of petroleum products by tanker to Skagway, and thence by pipe line to Whitehorse.

As I said at the beginning, my knowledge of the details of the Canol project is limited, inasmuch as it is not in any way an undertaking of the Petroleum Administration. We have been asked by the Army, very recently, to consult with them as to the future of the project. Accordingly, a study of the technical phases is now being made by qualified members of my staff. Pending the receipt and analysis of their report, I do not believe that I should volunteer any comment upon the operating phases of the project.

To date, I have not received actual copies of the contracts under which these Canol projects are being carried forward. No contract was submitted to my office and no advice has been sought from us as to any term of any contract. I hope that these contracts will adequately protect the future interests of the United States, after the expiration of the present war, if, as has been reported, large reserves of oil have been discovered in the Fort Norman area by the spending of American money.

Although it was the clear intention of the President that operations of this nature and contracts relating to them should be submitted to me in advance, I am not disposed to be too critical of projects undertaken at a time when it was feared that a Japanese invasion in force might strike at any moment. Yet now that the danger has passed, it would seem to be appropriate for the War Department and the oil experts of my staff, to re-examine the terms and conditions of the contractual arrangements with a view to deciding whether modifications should not be made to protect the post-war future of oil supplies for Alaska and this country.

(The communications referred to were marked "Exhibits Nos. 1105 to 1120-A" and are on file with the committee.)

Senator BREWSTER. Mr. Secretary, would there be any reason for fearing that submission to you would result in any undue delay in the advancement of the project?

Secretary ICKES. I don't think so.

Senator BREWSTER. What is the reputation of your office?

Secretary ICKES. We built pipe lines ahead of time. We have done it.

Senator BREWSTER. You have tried to carry out various projects in which there has been very considerable delay, although my impression has been that they were not the fault of your office, in connection with the pipe line projects in this country.

Secretary ICKES. That is right.

Senator BREWSTER. You think there is no warrant for anyone assuming that your office would not function as expeditiously as possible?

Secretary ICKES. I would be unwilling to admit it. I do not speak in disparagement: We have been in competition with the Army engineers on various types of projects. We think we are pretty good. I admit they are good too, but we——

Senator BREWSTER (interposing). I assume that would be the only basis on which the Army could justify the failure to consult you, that it might result in delay.

Secretary ICKES. I suspect you will have to ask—no, the reason given to me was that it was a war secret.

Senator BREWSTER. They don't trust you with secrets?

Senator FERGUSON. Well, Mr. Ickes, you are a Cabinet officer as well as Secretary.

Secretary ICKES. I don't wear a uniform, though.

The CHAIRMAN. Proceed, Mr. Secretary.

Secretary ICKES. After all, there is no denying the fact that the moneys, materials, and labor for the construction of the refinery at White Horse and the pipe line from Fort Norman have all been provided by the United States. Likewise, there is no denying the fact that it is these factors which will give peacetime value to the oil reserves which may exist in the Fort Norman area. This country took the financial risk that discoveries of oil in substantial quantities would be made in the Fort Norman area. Not only did we risk the cost of a refinery and pipe lines, we also provided all of the funds and materials for drilling wells in the Mackenzie River Basin. I am told that this exploration has resulted in the discovery of substantial reserves. In view of my own concern over the prospective shortages of oil in the continental United States, I am delighted that this is so. I would only suggest, and I have no doubt the War Department will concur, that these contracts should be reexamined in the light of present conditions and future possibilities in order that the expenditures of this Government with respect to these projects may be repaid. In return for the enormous investments and risks which we alone have assumed from the very beginning, the United States ought to be accorded a permanent peacetime share of the oil and products to be produced upon terms commensurate with the magnitude of the contribution which this Government has made.

Senator BREWSTER. What does that mean, Mr. Ickes, that you would make of these contracts a scrap of paper?

Secretary ICKES. I haven't seen the contracts. I don't know.

Senator BREWSTER. Assuming they are contracts of the United States Government, what validity do you think should attach to them, even if we have been imprudent?

Secretary ICKES. I think that we might at least give the other party to the contract a chance.

The CHAIRMAN. Mr. Secretary, I would like very much for you to furnish the committee with that controversial letter of December 9 that you refer to on page 10 in that last paragraph.¹

Secretary ICKES. I don't suppose I have a right to deny it, if you want it.

The CHAIRMAN. I am making the request formally of you.

Secretary ICKES. May I ask that it be not made public?

The CHAIRMAN. Certainly. Let us discuss that with you later. We won't make it public until we have discussed it with you.

Secretary ICKES. All right.

The CHAIRMAN. Did you have some questions?

Senator FERGUSON. Yes, I have.

Mr. Ickes, you were not consulted, then, on the form of the contract?

Secretary ICKES. No.

Senator FERGUSON. You were not familiar with the fact that the wells and the casings all went to the Imperial Oil Co. within a period of 6 months after the war.

Secretary ICKES. No; I don't know that of my own knowledge.

Senator FERGUSON. But if that is a fact, then of course the pipe lines and the refinery would be of no value as far as the wells were concerned—

Secretary ICKES (interposing). No.

Senator FERGUSON. If a private corporation owned the wells.

Secretary ICKES. That is right.

Senator FERGUSON. I notice that you say on the first page that this came to your attention by chance.

Secretary ICKES. That is right.

Senator FERGUSON. Could you tell us just how it did come to your attention?

Secretary ICKES. Mr. Davies told me about it. He happened to know the contractor—ran across him in the lobby of his hotel. So it came to us anyhow.

Senator FERGUSON. Do you know how large an area they are exploring in Canada?

Secretary ICKES. Six hundred thousand square miles.

Senator FERGUSON. Do you know as a matter of fact that it is limited so they don't go into Alaska, into United States territory?

Secretary ICKES. I understand it is solely in Canada.

Senator FERGUSON. Yes. Do you know of any reason that should be true?

Secretary ICKES. No. As a matter of fact, I have been trying for over 2 years to try to develop oil resources in Alaska.

Senator FERGUSON. Has the Army been consulted about the Alaska fields?

Secretary ICKES. Yes. As a matter of fact, the Army is going to finance, agreed recently to finance, at least one test well. We are working on plans now so that we can go in the first thing when the weather permits.

Senator FERGUSON. Do you know why they first explored the Canadian Northwest rather than the field that you have in mind?

Secretary ICKES. No. I think it is only fair to the Department of the Interior to say that for all of 2 years we have been begging for

¹ Referring to Exhibit No. 1119.

money to go into Alaska. I first hoped I could get it out of the President's fund, but the Budget said I couldn't under the law. I appealed to the Navy on several occasions and to the Army, and finally the Army has consented to do it and I am very grateful for it.

Senator FERGUSON. Do you know whether or not the Navy was consulted as to whether or not they could——

Secretary ICKES (interposing). Mr. Davies makes a very pertinent observation. There was already some production at Norman fields. It was known that there was some oil there.

Senator FERGUSON. There were three wells producing and two not producing, as a matter of fact.

Do you know whether the Navy was consulted as to whether or not they could transport the oil to Skagway?

Secretary ICKES. I do not know.

Senator FERGUSON. But that was the method that you proposed, that they transport it by tanker——

Secretary ICKES (interposing). That is right.

Senator FERGUSON. And then by pipe line or tank car across on the railroad from Skagway to White Horse.

Secretary ICKES. We know they are taking oil to Alaska by water.

Senator FERGUSON. Yes.

Secretary ICKES. It is the only way we can get it there.

Senator FERGUSON. This is the total of your correspondence with the Secretary of War or the War Department?

Secretary ICKES. That is right.

The CHAIRMAN. Do you have any questions you want to ask? Go ahead, Senator Brewster.

Senator BREWSTER. I am still very much interested, Mr. Secretary, in the division of your responsibilities for petroleum supplies as between the United States and foreign fields. This seems to present a very pertinent illustration.

Secretary ICKES. We have held all along, both in correspondence and in conversations with people in the War Department, that we ought to be consulted in advance. We aren't consulted. It is difficult to do a good job. I have fought that issue out very vigorously, and finally I appealed to the Joint Chiefs of Staff, and Admiral Leahy decided that, of course, we wouldn't be expected to do a job if we didn't have the facts, without which we wouldn't know when or where or in what quantities they would want supplies. We just had to go it blind. It threw an unfair burden on us.

We were told right along these were military secrets that might be of aid and comfort to the enemy if I should tell Mr. Hitler what we were doing.

Senator BREWSTER. Although you are responsible for supplying the great portion of the petroleum requirements of this country as well as of some other countries.

Secretary ICKES. Yes; we were kept absolutely in the dark until the last few months.

Senator BREWSTER. When do you mean, the last few months?

Mr. DAVIES. Two months ago.

Secretary ICKES. Probably 2 months ago, 2 or 3 at the outside.

Senator BREWSTER. Is it now agreed that you are responsible, or what is your present status?

Secretary ICKES. I don't know what our present status is. I never know from day to day.

Senator BREWSTER. That is sadly true, I agree. Yet if this is one world, then the petroleum reserves of the United Nations are more or less one accountability, are they not?

Secretary ICKES. That is right, and I would like to say in contrast that we know all the time what the British oil position is.

Senator BREWSTER. You mean as to reserves?

Secretary ICKES. As to reserves and quantities and supplies and all the rest of it.

Senator BREWSTER. And refining capacity?

Secretary ICKES. Everything. Any oil information we want from London we get forthwith. In fact, we usually have to go to London to find out about our own situation. That is true.

Senator BREWSTER. Is that true of the other United Nations?

Secretary ICKES. London, of course, is the principal one. We have had no difficulty. We don't have to know what the Russian situation is.

Senator BREWSTER. You do supply Russia, do you not?

Secretary ICKES. We send certain products over.

Senator BREWSTER. So you are interested in their situation?

Secretary ICKES. Yes; we have no trouble there.

Senator KILGORE. Mr. Secretary, have you had an opportunity to read and study the contract and the agreement between the Canadian Government and the United States with reference to these wells?

Secretary ICKES. No.

Senator KILGORE. Or this development?

Secretary ICKES. It was not until this morning, when I was talking to Mr. Davies on the way up here, that I knew there was a contract between us and Canada. It has never been submitted or discussed with any member of my staff.

Senator KILGORE. Have you ever had an opportunity to study or discuss or have you discussed with anybody the contract between Imperial Oil Co. and the United States?

Secretary ICKES. No; we don't know any more about that than we do about the contract with Canada.

Senator KILGORE. I would like to ask you, then, a few hypothetical questions based on that contract, Mr. Secretary. In the first place, I think the reason has been given to the committee that the cause of not consulting the Petroleum Coordinator was the fact that this development was outside of the continental United States. However, there was a statement made at that time that one of the reasons for this was to decrease the outgo of oil from the continental United States into the Alaskan Territory, which, of course, would have an effect on the Petroleum Coordinator's office. Would it not?

Secretary ICKES. Yes.

Senator KILGORE. In other words, any decrease in the outflow from the continental United States to foreign soil would have an effect.

According to my understanding of this agreement, the United States agrees to do the development work at Norman wells, including all prospecting, from a point up in the Arctic Circle to the Alaskan border, and south for a great distance and east for a great distance, and to drill (I believe the contract has been let) about a hundred wells in there, to develop the field to a production of 20,000 barrels a

day of actual production, and also to explore the potential oil reserves. In addition to that, for the oil produced from the wells drilled by the United States Government, we are to pay \$1.25 a barrel at the casing head and, of course, then transport it 600 and some miles to Whitehorse and refine it there at our own expense.

Is that in any way commensurate with the prices we are paying our own oil people in the continental United States for oil, even taking into consideration the cost of tanker transportation and rail transportation to Whitehorse from the western coast?

Secretary ICKES. Is this the contract with Imperial Oil? ¹

Senator KILGORE. Yes, and with the Canadian Government, also. ²

Secretary ICKES. The crude oil price wouldn't be as much—

Senator KILGORE (interposing). Casing head.

Secretary ICKES. As \$1.25. No, I wouldn't think so, probably.

Senator KILGORE. I agree with you on that in one sense of the word, but doesn't that just about amount to a royalty?

Secretary ICKES. When you take all of the elements of cost into account, it looks high, but I meant just for oil it wouldn't be high.

Senator KILGORE. But isn't that just about what amounts to a royalty in the United States?

Secretary ICKES. Yes.

Senator KILGORE. In other words, if you as an oil producer contract with me as a landowner that you will go ahead and develop my land, drill wells, pay all the cost of development, and then pay me so much a barrel for the oil at the casing head, that is what amounts to a royalty.

Secretary ICKES. Yes. I think it would come within that definition, and as a royalty it is quite high.

Senator KILGORE. I was rather interested also that the agreement to prospect was limited to the southern border of Alaska, which is our own territory. Are there not some very good oil prospects, also, in Alaska that could be prospected?

Secretary ICKES. There are oil prospects, but, of course, Imperial has no rights over there. They would have to come to see me before they got any rights, because they are probably on public land.

Senator KILGORE. Yes; but when we are developing oil for the United States Government, wouldn't that make it a slightly different proposition there, so that we would probably want to develop our own territory also?

Secretary ICKES. There have been rumors from time to time that the Army was going to prospect for oil in Alaska.

Senator KILGORE. The development of that prospecting there, just this prospecting and exploration and development of the Norman fields, is estimated to cost \$17,224,860.

Secretary ICKES. That is stated in the contract?

Senator KILGORE. That is the estimated cost of development, the allocation for prospecting and developing that field up there to 20,000 barrels. I want to get your opinion as to this also: That carried 20,000 barrels at the field, with a 3,000-barrel pipe line to transport from Norman wells. Is that in or out of bounds? What is the purpose of that extra 17,000 barrels of actual development? I am not talking about prospecting.

¹ Exhibit No. 1087, appendix, p. 9790.

² Exhibit No. 1089, appendix, p. 9827.

Secretary ICKES. I will have to pass that one to Mr. Davies. Can you answer that?

Mr. DAVIES. I think the pipe line clearly is inadequate in relation to any such production.

Senator KILGORE. The reason for its inadequacy, therefore, must have been poor advance study; isn't that right, speaking as an oil man, Mr. Davies?

Secretary ICKES. I don't think we ought to answer questions of that kind for you, Senator.

Senator KILGORE. I appreciate that.

Secretary ICKES. We don't have to prosecute for you.

Senator KILGORE. I know. Under that contract also, there is no future as far as that development is concerned beyond 6 months after the termination of hostilities, as far as we, as investors, are concerned. I am talking about the United States Government as investors. Were you consulted in any way about that feature of the contract?

Secretary ICKES. No.

Senator KILGORE. We were informed recently that the matter was first thought of some 3 months before the actual contract was entered into, but nobody was sent on the grounds. From the location of the field, Mr. Secretary, and taking into consideration air transport, would it have been possible to have made a fairly thorough investigation of the project within a 3 months' period?

Secretary ICKES. I would think so.

Mr. DAVIES. I would think so.

Secretary ICKES. That could be done. The Geological Survey had pretty good knowledge of that field in general.

Senator KILGORE. We have there under contract a 3,000-barrel refinery in process of construction, and this 4-inch line. What would be involved in increasing that to 20,000 barrels? How much time and expense would be required to increase that to the 20,000-barrels capacity in case it were needed?

Secretary ICKES. More than a year, wouldn't it?

Senator KILGORE. To enlarge a 3,000-barrel refinery and a 3,000 barrel line to 20,000-barrels capacity?

Mr. DAVIES. At least a year or a year and a half, I would say.

Senator KILGORE. From 12 to 18 months?

Mr. DAVIES. Yes.

Senator KILGORE. Practically as long as it would require to build a new refinery; isn't that right?

Mr. DAVIES. Yes; because that is practically what you do when you go from 3,000 to 20,000.

Senator KILGORE. Yes. The same would apply to the pipe line. It would take almost as long to increase the pipe-line capacity, except for the building of the access road, isn't that right?

Mr. DAVIES. Yes; but, of course, the building of the road is a very important part of the pipe-line undertaking.

Senator KILGORE. Yes. That is one question I wanted to get to. In dividing that project, what portion of the cost of laying that 4-inch line would be in the building of the access road and what portion would be the actual laying of the line?

Mr. DAVIES. Mr. Miller, can you provide that figure?

Mr. MILLER.¹ I have no figures on it at all.

Senator KILGORE. Having once built the road, the laying of additional lines in the future will be very much reduced in cost, will they not, Mr. Secretary?

Secretary ICKES. Yes. But, of course, there would be a question whether to build an additional pipe line or to take this pipe line up and replace it with one of larger dimensions. Another question there, too, is whether that is the best outlet for that field.

Senator KILGORE. Yes; there is that question, also.

Secretary ICKES. And there is still the question of the proposal that we made originally.

Senator KILGORE. Would you mind telling the committee the idea that your organization had with reference to the outlet to the Norman field for oil, what was the cheapest, best, and most convenient outlet, if you have made a study of it?

Secretary ICKES. We haven't made a study of that. We are doing it now in collaboration with the Army, Mr. Davies tells me.

Senator KILGORE. Do you know the distance from Norman wells to navigation on the Yukon River, Mr. Davies?

Secretary ICKES. We don't know.

Senator KILGORE. Do you know during what period of the year the river is navigable?

Secretary ICKES. We can get it.

Senator KILGORE. I was informed recently that the river was navigable with a 6-foot channel within 300 miles of the field, with no mountain ranges to cross. I am wondering how big a barge, Mr. Davies, that would accommodate?

Mr. DAVIES. I don't have that available now, Senator. I would be glad to make any study of that kind you care to have. We are right now in the throes of studying this entire Norman wells problem from the standpoint of what to do with the oil that now it is evident is there, and all those factors will, of course, be reviewed by us with the Army, but here this morning I don't have that data.

Senator KILGORE. Mr. Davies, would you answer a question from a practical oil man's viewpoint in normal times, not taking the war into consideration? Taking into consideration a contract which says that the pipe line and all above-ground facilities shall be held after the war intact, taking into consideration also the clause of the contract which prescribes that the casings, wells, and everything below ground shall be the property of Imperial Oil Co. and that the Canadian Government shall have outright one-half interest in all the developments that take place outside the Imperial Oil Co.'s lease and shall have the option to buy all above-ground facilities, first option at an appraised price, and if they do not elect to buy at that time, they must then be sold intact, who aside from the Canadian Government or the Imperial Oil Co. could bid on those facilities in peacetime?

Mr. DAVIES. I think only the Canadian Government and the Imperial.

Senator KILGORE. In other words, it would be limited to those two organizations by the very fact that the oil underground belonged to those two organizations, either in toto or as copartners; isn't that right?

Mr. DAVIES. I would think so.

¹ Max B. Miller, Director of Construction, Petroleum Administration for War.

Senator KILGORE. Which would eliminate any chance of getting competitive bidding on that or any chance to sell it at auction intact.

Mr. DAVIES. I would think it would be very unattractive to any other interest.

The CHAIRMAN. Mr. Ickes, I would like to ask one question right there that just occurred to me. What is the comparative cost between this 4-inch pipe line from Norman wells to Whitehorse and the tremendously big one which you have just finished?

Secretary ICKES. The Big Inch, which runs over 1,200 miles, cost something over 80 millions, didn't it?

Mr. DAVIES. Yes.

Secretary ICKES. They estimated the completed cost of this 500-mile, 4-inch line and refinery at roughly $38\frac{1}{4}$ millions.

The CHAIRMAN. For a little less than half the distance it is going to cost almost half as much.

Mr. FULTON. Also, Mr. Ickes, the total project cost, I believe, \$134,000,000.

Secretary ICKES. That is right.

Mr. FULTON. Of which roughly 34 million would be for the facilities that are the type you recommended, to bring oil by tanker or barge and then to distribute it up and down along the highway to Fairbanks; and the other 100 million, taken as a unit, represents the project of exploring for the Norman oil wells and developing those wells and building the refinery and building the pipe lines and the access equipment of various kinds. So the project would be \$100,000,000 roughly, rather than just the thirty-odd millions that you referred to, would it not?

Secretary ICKES. Yes. When you take those other factors into account, the cost would be a good deal over 30

Mr. FULTON. Of course, the obtaining of this oil from Norman wells and the processing of it into gasoline and the distribution facilities, other than what you refer to, is a \$100,000,000 project.

Secretary ICKES. That is right.

Senator KILGORE. Now let me ask Mr. Davies a question. What would have been the difference in tonnage of steel between an 8-inch and a 4-inch pipe line?

Mr. DAVIES. I will ask Mr. Miller that.

Senator KILGORE. All right.

Mr. MILLER. About 200 percent, a little over 200 percent; twice as much steel in the 8 as in the 4

Senator KILGORE. What is the flow capacity of an 8- as compared with a 4-inch line?

Mr. MILLER. The flow capacity would be about five times as much.

Senator KILGORE. Five times as much for twice as much money.

Mr. MILLER. Yes.

Senator KILGORE. In other words, we could have put 15,000 barrels a day through an 8-inch line if we could put 3,000 under those conditions through a 4-inch line; isn't that right?

Mr. MILLER. Yes.

Senator KILGORE. With considerably fewer pump stations; isn't that right?

Mr. MILLER. Not necessarily.

Senator KILGORE. Not necessarily?

Mr. MILLER. No.

Senator KILGORE. One of the large items of the cost of laying it would be the access road. The 200 percent cost of laying the 8-inch line over the cost of laying the 4-inch line would not be commensurate because you would have had your access roads to build anyway. Isn't that right, too, Mr. Miller?

Mr. MILLER. That is right.

Mr. FULTON. Mr. Ickes, I noticed in your statement that, up until recently, all of the requests for information on this came from you to the War Department, rather than from the War Department to you.

Secretary ICKES. The War Department never asked us a question about it.

Mr. FULTON. Until after this investigation started several months ago.

Secretary ICKES. They haven't said anything since then.

Mr. FULTON. Since that time they have asked you to get together with them to review whether the project should be continued.

Secretary ICKES. Yes; that is right.

Mr. FULTON. And up until that time they never brought any matter of any kind to the Oil Administrator on this project?

Secretary ICKES. That is right.

Mr. FULTON. You refer here to certain letters which were sent back and forth, but did they have any conferences with you in addition to those letters?

Secretary ICKES. Yes; once or twice. General Somervell (I can't fix the date) came to my office during the correspondence, while that was on. He came to explain why we had not been consulted.

Mr. FULTON. He referred to the question of secrecy?

Secretary ICKES. Yes. He said it was a military secret. Then on another occasion he and Admiral Horne came to see me, but that was not about Canol. That was on the general question of furnishing us with information without which we didn't see why anyone would expect that we could do a competent job in supplying the armed forces with petroleum. It was on that occasion that they denied any—they just wouldn't do it. I reminded them that I was a member of the Cabinet and that the British trusted us, and I finally remarked to Admiral Horne, "Well, if I wore a mere midshipman's uniform there wouldn't be any difficulty about trusting people." It was subsequent to that that we appealed to the Joint Chiefs of Staff, who took, from our point of view, a more sensible view of the situation.

Mr. FULTON. You did recommend to them in your letters, and they did ultimately follow (whether following your recommendation or their own decision), a recommendation to construct facilities to obtain the oil and gasoline products by tanker and by the distribution line.

Secretary ICKES. Yes; we recommended that distribution line.

Mr. FULTON. Now in effect they have done both. They have both followed their original project, which you were not asked about, and followed your suggestion.

Secretary ICKES. That is right.

Mr. FULTON. As I previously pointed out, yours involved about a \$34,000,000 investment, and you could, as you point out in your statement—you not only could, but you did, or rather, they did—

Secretary ICKES (interposing). To date we have supplied Alaska what it needed.

Mr. FULTON. No oil products could be supplied from these other projects, the \$100,000,000 part, until this pipe line from Norman wells is completed and the refinery is completed.

Secretary ICKES. That is right.

Mr. FULTON. So, even from the military standpoint, any benefits they have obtained to date would be benefits from the tanker project rather than from the pipe line and refinery project.

Secretary ICKES. That is right.

Mr. FULTON. With respect to that, the question was raised in some of our private hearings by the Army about the ability of the Navy to protect the inside passage to Skagway, and that this would be a project—that is, the refinery and pipe line and the development of Norman wells would be a project—to defend Alaska if the Navy couldn't protect tankers up the inside passage. The point I wanted to bring out was that if that could not be done, the benefit from this project would be one which would begin to accrue only sometime next year; is not that correct?

Secretary ICKES. Moreover, they had to get troops and supplies up there, and there was no way they could do it except by the inland passage. If the Navy could protect for one purpose, they could for all.

Mr. FULTON. These contracts were recently made public by the War Department, or at least it so informed us. The provision in the contract with the Canadian Government with respect to the wells—and I quote—is [reading from Exhibit No. 1089]:

The wells would remain part of the leasehold or permit property of the Canadian company

that is the Imperial Oil Company

and would be regarded as having been drilled under the provisions of the Dominion's regulations noted in this clause.

Senator Kilgore has already pointed out that we spent or were to spend approximately \$17,000,000 in the exploration and development of those wells and that, in order to return or get back any part of that, we would have first to buy a million and a half barrels of oil at \$1.25 a barrel and then thereafter would have to continue buying oil at that rate and 75 cents per barrel would be credited on the books to recoup the expenses.

Would you regard such a contract as that as a provident contract?

Secretary ICKES. Inasmuch as my Department said that the Elk Hills contract wasn't in the public interest, I don't see why I shouldn't say what I think. I don't think that is in the interest of the United States Government. I would go further and say, if we had been consulted, we would never have approved a contract of that sort.

Mr. FULTON. Is that what you had in mind in recommending in your statement to the committee that there be an examination of these contracts for the purpose of determining whether it is possible at any rate to negotiate further with respect—

Secretary ICKES (interposing). That is right. This is the closest that any of us have come to that contract to date.

Mr. FULTON. The refinery itself was not built in the United States; it was built at Whitehorse.

Secretary ICKES. Oh, it was built there; yes. I misunderstood your trend. That refinery, as I remember it, was bought in Texas.

Senator FERGUSON. You are correct in that, Mr. Secretary.

Mr. FULTON. But that would be only for the cracking unit, I believe. There were many other parts of this which had to be manufactured.

Secretary ICKES. As a result of buying that refinery and taking it up to Canada, we had to do some readjusting of our 100-octane aviation gasoline program.

Mr. FULTON. To the extent that they used any refinery equipment or pipe line or other equipment, other than perhaps the 4-inch, they would be using materials which were scarce and which were needed here for petroleum projects in this country.

Secretary ICKES. I wouldn't exclude the 4-inch pipe. It was very scarce at the time they started and made that contract, knowing what a time we had getting pipe.

Mr. FULTON. This project involved not only dollars but, by reason of the dollars, it demanded materials.

Secretary ICKES. Yes.

Mr. FULTON. The refinery project, however, if it had to be built, might possibly have been built in United States territory instead of Canadian territory.

Secretary ICKES. It would have been better built in Alaska than in Canada.

Mr. FULTON. You mean by that that you think it would have served the purposes of the project better, irrespective of the question of who owned it later?

Secretary ICKES. Yes; I think so.

Mr. FULTON. This project for building a refinery in Canada at Whitehorse was made subject in this contract to a provision that [reading from Exhibit No. 1089]:

At the termination of the hostilities, the pipe line and refinery shall be valued by two valuers, of whom one shall be named by the United States and one by Canada, with power, if they disagree, to appoint an umpire. The valuation shall be based upon the then commercial value of the pipe line and refinery, and the Canadian Government shall be given the first option to purchase at the amount of the valuation.

Mr. Ickes, the then commercial value of the refinery at Whitehorse would of course depend, would it not, upon whether there was any commerce, as distinct from our military uses, to give a value to such a project? How could that refinery have any very considerable commercial value?

Secretary ICKES. I don't think it would have any value at the end of 6 months.

Senator KILGORE. Wouldn't it also depend on whether the fellow who had the oil at that time wanted to sell oil to the refinery, even if they had a market?

Secretary ICKES. Yes.

Senator FERGUSON. Mr. Secretary, with the oil wells in the hands of a private company, with no obligation to furnish oil either to the pipe line or the refinery, what commercial value could it possibly have?

Secretary ICKES. The refinery?

Senator FERGUSON. Yes.

Secretary ICKES. Not unless there is some local production or unless—

Senator FERGUSON. But with the local production in the hands of a private company, without any obligation to furnish it——

Secretary ICKES. The private company wouldn't have to bid anything for it.

Senator FERGUSON. Therefore, the commercial value would be nil.

Secretary ICKES. That is right.

Mr. FULTON. Mr. Ickes, as far as any local production was concerned, you know of no contention that there is any field along that Alcan Highway?

Secretary ICKES. No; I don't know of any.

Mr. FULTON. If there were, it would be inexcusable to spend \$37,000,000 on the pipe line to get the Norman Wells' products some hundreds of miles off the route of the refinery.

Now the refinery would cost \$34,429,000, as estimated, and this contract provides further that [reading from Exhibit No. 1089]:

It is proposed that both Governments agree that they will not themselves order or allow the dismantling of either the pipe line or the refinery, nor will they allow any company which purchases them so to do, unless and until approval for dismantlement is recommended by the permanent joint board on defense.

That would mean that even if you could get someone who wanted that refinery and was willing to buy it for a value that he could get by dismantling it and moving it, that he couldn't do it without the consent of a joint board, of which Canada was a part, would it not, Mr. Ickes?

Secretary ICKES. Well, I would rather not be asked to interpret the contract. I think the committee is competent to do that.

The CHAIRMAN. The contract speaks for itself in that regard, I think.

Secretary ICKES. I think so.

Senator KILGORE. Mr. Secretary, I would like to ask Mr. Davies for just a few comparative figures from his experience. The company with which you were formerly connected naturally operates storage facilities, does it not, Mr. Davies?

Mr. DAVIES. Yes.

Senator KILGORE. What do you figure the cost of storage per barrel of either refined or crude products, petroleum products?

Mr. DAVIES. Of course, it varies all over the place, depending on where it is, the quantities, and so forth.

Senator KILGORE. I realize that. Taking into consideration the transportation up the inland passage of the materials to build the necessary storage tanks, I wonder if you could figure how much it would cost to store 185,000 barrels of aviation gasoline and 336,000 barrels of motor fuel, that being a 12 months' total production, optimum production, maximum production, of this whole project if it got into operation.¹

Mr. DAVIES. I would like to develop a figure for you, Senator.

Senator KILGORE. I wish you would, taking into consideration in this figure the fact that there are products lines already constructed which could be used to fill this storage, once the product reached Skagway.

Mr. DAVIES. A very small cost there; by comparison with the figures we are talking about, infinitesimal. But I will develop an actual figure for you.

Senator KILGORE. Mr. Davies——

¹ Subsequently submitted, see appendix, p. 9913.

The CHAIRMAN (interposing). Let him make that development. Will you make that development that you speak of?

Senator FERGUSON. Do you want to do it now or later?

Mr. DAVIES. No; I prefer to do it later.

The CHAIRMAN. Then you will furnish it for the record at a later date?¹

Mr. DAVIES. Yes.

Senator KILGORE. Those figures are based on the present proposed refinery at the maximum production that could be used of a pipe line and refinery. I want to ask you another question. In the storage of products, it is much easier to spread than is a refinery, isn't that right? A refinery must be pretty closely concentrated, isn't that right?

Mr. DAVIES. Correct.

Senator KILGORE. Whereas, you can spread storage all over the map in reasonably small quantities at not much greater expense than if it was grouped together in one group, isn't that right?

Mr. DAVIES. That is, of course, correct.

Senator KILGORE. What size barges are used up the west coast, from Prince Rupert up the inland passage? What is their capacity?

Mr. DAVIES. Of course, the movement of oil to Alaska is by tanker.

Senator KILGORE. I know, but it was proposed to move it by barge from Prince Rupert to Skagway at one time. I was wondering if you knew what size barges were contemplated.

Mr. DAVIES. I would think 10,000-barrel capacity.

Senator KILGORE. What is the capacity of your normal tanker on the west coast now?

Mr. DAVIES. Seventy-five thousand to one hundred thousand barrels. We calculated that one tanker, used about one-fourth of the year, would supply the equivalent of this refinery project.

Senator KILGORE. Now the inland passage, of course, is accessible as far as water is concerned, the whole year. You have fogs to deal with up there, is that right?

Mr. DAVIES. Correct.

Senator KILGORE. And you have been furnished all the gasoline used there by tanker up to the present time, isn't that also a fact?

Mr. DAVIES. Correct. It is the only way to get it there.

Senator KILGORE. And that has been distributed, then, either by products lines or by the Alaskan Railway or the Skagway-Whitehorse Railway, isn't that a fact?

Mr. DAVIES. Yes; or by truck.

Senator KILGORE. By truck once it gets in on the rail lines?

Mr. DAVIES. Yes.

The CHAIRMAN. Mr. Secretary, I wanted to ask one question, and then I am going to extend the courtesy of the committee to the Congressman from Pennsylvania who came over here very much interested in this project.

Don't you think that your office as the Petroleum Coordinator should make a survey of this project, with a view to deciding whether it ought to be junked now and save the expense or not?

Secretary ICKES. We have an opinion on that.

The CHAIRMAN. What is that opinion?

Secretary ICKES. The last I heard, it was estimated it would take \$30,000,000 more to complete the project. I don't see any sound business judgment in spending \$30,000,000 to buy nothing with, and this

¹ Subsequently submitted, see appendix p. 9913.

contract, of which we had no knowledge until today, shows that there is no value left there.

The CHAIRMAN. That is what I thought.

Secretary ICKES. We are putting in \$30,000,000, or whatever the number of millions, in order to benefit the Imperial Oil Co., and the Canadian Government.

The CHAIRMAN. Congressman Gavin, you want to ask some questions?

Congressman GAVIN. No; I haven't any questions.

The CHAIRMAN. You want to make a statement to the committee. I see.

Senator KILGORE. I wanted to ask Mr. Davies a question, because I still maintain this \$1.25 is royalty under the terms of the contract. What is the normal royalty now, Mr. Davies, on oil at \$2.75 a barrel? In other words, if we pay the oil company \$2.75 a barrel at a well, what royalty is paid to the landowner out of that? Isn't it one-eighth to one-sixth? It fluctuates from one-eighth to one-sixth?

Mr. DAVIES. One-sixth to one-eighth is common practice.

The CHAIRMAN. Go ahead with your statement, Mr. Gavin.

STATEMENT OF LEON H. GAVIN, MEMBER OF CONGRESS REPRESENTING THE TWENTIETH DISTRICT OF PENNSYLVANIA

CRITICISM OF PROJECT BY REPRESENTATIVE LEON H. GAVIN

Congressman GAVIN. I want to thank the distinguished Member of the Senate for his kindness in permitting me to appear here at this time. I might clarify my position as to why I am interested in this Canol project. My home is Oil City, Venango County, Pa., which is the home of the oil industry. We have a field, the Pennsylvania grade crude field, where there are approximately a billion barrels of oil in the earth waiting to be coaxed from the reluctant sands to meet the needs of the civilian and war purposes, but we have been unable to get any consideration for a price increase to justify recovering this oil.

In my district the production is off about 15,000 barrels of oil a day since last year—15,000 barrels of oil a day—and I might say that the leases are being abandoned by the hundreds, the wells are being pulled, the casings and machinery and equipment are being junked and sold to the scrap dealers. Here in our own back yard we have this great potential production of oil, and we are unable to get any consideration. On the other hand, the Government goes up into the Canadian wilderness to spend \$138,000,000 of the taxpayers' money without first determining whether or not there is any oil. So if the "hold the line" policy of the administration is to be continued, then I want to see the "hold the line" policy continued as far as the American taxpayers' dollar is concerned.

The CHAIRMAN. We want to make it perfectly clear that this is not the Government. This is the Army service forces. There sits the Government in the oil business. This is the Army Service Forces.

Secretary ICKES. No; I am not the Government.

Congressman GAVIN. I took it up with the Government, but the Government told me they were unable to do anything for me. Therefore, I went to the Army to determine whether or not I could secure any information from the War Department, but they said they couldn't

give me any information (this was October 12), that it was a matter of military secrecy, and shortly thereafter McLean's magazine of Canada came out with a comprehensive story showing the pictures, the graphs, and charts and maps, giving us the lay-out. So I was of the opinion there was no longer any military secrecy and if the Japs wanted to drop any bombs, Canada told them exactly where they could drop them. Therefore, I was insistent that the War Department give me some information, but they still held out that they couldn't, although it was announced in Ottawa just the other day; they came out and gave a very comprehensive statement, but we can't even, as Members of the Congress, representing the people, get any information. Therefore, I insisted on October 12, and on the 19th (you can refer to the Congressional Record), that they give me the story, and I wanted to know why something wasn't being done to inform the American people what was going on.

Now, the reason I came here this morning is because I represent an oil district where thousands of people in my State are directly or indirectly dependent upon this basic industry—the Pennsylvania grade crude oil—for their very existence, and at the same time we need this highly valuable lubricating oil to meet the needs of our war demands, and we are getting nowhere.

What I want to know, and what I would like to have the committee find out for the benefit of the general public is, Who conceived this idea for this Canadian oil project?

The CHAIRMAN. We are going to tell you by the record before we get through.

Congressman GAVIN. All right, if it was the War Department, who influenced the War Department? The War Department ordinarily would go to Secretary Ickes, Petroleum Administrator for War, and take up a matter of this kind. I noticed in one of the statements of Mr. Gallagher something about Arctic Explorer Stefansson being a United States consul for oil, and I thought possibly Stefansson got the idea there was a lot of oil up there, and he sold the War Department the idea, and the War Department went ahead without giving the Petroleum Administrator for War an opportunity to vote on it. Let's find where this came from, who originated the idea, and who pushed it through. That is No. 1.

No. 2. I would like to know why this whole oil field was not proven; why it was not determined how much oil there was in the field, because Secretary Ickes will quite agree with me that in any field where there is extensive exploration or development, they know by going down into the sands how much potential oil is in the earth. Is that right or not?

Secretary ICKES. I understand so.

Congressman GAVIN. What I would like to know is why the field wasn't proven before it was decided to proceed with the project. That is, they proceeded to build highways, developed the waterways, they built airports and built pipe lines, and they started in to build refineries, and they were doing all the things they shouldn't have done until they first found out whether or not they had any oil. Now they come along and tell us they have 3,000 barrels of oil, and our daily production is 4,250,000 barrels. We produced 1,385,000,000 barrels of oil last year. They are asking us to up that next year to 1,550,000,000 of oil, and now we talk about a drop in the bucket, 3,000 barrels of oil, for which we are spending \$138,000,000. I want to know

from the War Department why they spent the American taxpayers' money before they first found out whether they had any oil.

No. 3. What is the estimated cost of the whole job? How much is it going to cost the American people? Now that the Jap threat to the Aleutians; that is, Alaska, Attu, and Kiska is removed, there is no more excuse for saying the Japs are going to move in and take this over, and we have to have oil; that threat is removed; it becomes evident that there is no further justification for spending the American taxpayers' money, and why doesn't the War Department, as Secretary Ickes has just said, stop this project which evidently hasn't produced sufficient oil to justify any further expenditure, and let us send men and materials now in Canada back to the United States, where we have a manpower shortage and we have a material shortage? Isn't that right? We have a material shortage for oil production throughout the entire United States, that is, pipe, casings, and so forth?

Secretary ICKES. That is right.

Congressman GAVIN. Now we are short of manpower, and I understand we had from 2,500 to 5,000 men up there. We know there is not enough oil there to continue spending the American people's money. Let's stop it, bring these men back, bring these materials back into the United States where they can be used in the production of our own American oil, that it is greatly needed today. That, I think, should be your recommendation. I suggest that it be stopped right now, and manpower come on home to our own back yard.

The CHAIRMAN. As soon as we have made the record complete with all the evidence we have, we will find out the facts and make the recommendation.

Congressman GAVIN. I think also, Mr. Chairman, that we should make public, for the benefit of the American taxpayer, who, in the final analysis, is going to foot the bill under the terms of the contract entered into between Canada and the United States on May 20, 1942, as this matter now is no longer of military secrecy. The Japs know everything they want to know, so let's forget that angle and tell the American taxpayer how, and why, and where we spend the money.

As I understand the set-up, we are to pay \$1.25 for the first 1,500,000 barrels of oil, and after that, they are going to rebate, you might say, the price to 50 cents a barrel, or effect a saving of 75 cents a barrel on every barrel of oil produced after the first 1,500,000 barrels. Well, on the basis of the present production, it would take 61,333 days to get our money back, or it would take us 168 years on that set-up to get the American people's money back, but we will never get our money back because 6 months after the war, it all reverts to Canada on a basis to be established by two parties who will determine the commercial value, which will be nothing because there isn't any commercial value. They have there a production of 3,000 barrels of oil, they have no ready market, and there is no economic justification for producing and refining that amount of oil, because you couldn't ship it back to the United States. There is no place to sell it up there, so the project will fall into disuse and ultimately be abandoned and they will pick it up at scrap prices to the tune of Uncle Sam's \$138,000,000.

The next question: Are the Canadian and the British Governments paying any part of this cost?

The CHAIRMAN. No; they are not. I can answer that right now.

Congressman GAVIN. Not a dime, and if not, why not? Why didn't we have some good horse trader handling this contract for us who would try to make a deal that would be beneficial to our own people who have to foot the bill? I feel we are all fighting the war together, and I am of the opinion that we all ought to assume our proportionate share, particularly as this is a Canadian oil development and at the termination of the war Canada will take it over, and we have just carried on a gigantic W. P. A. project for the benefit of the Canadian people, opening up the Canadian wilderness, and Uncle Sam isn't getting anything out of it.

No. 7: Why do Britain and Canada continue to send out misleading and false propaganda about the great reservoirs of oil underneath the earth in the subarctic regions?

The CHAIRMAN. We don't know for sure whether that is misinformation. We are trying to find that out; we are exploring that and when we get it explored, we can tell you.

Congressman GAVIN. For the time being it is misinformation.

The CHAIRMAN. Not necessarily.

Congressman GAVIN. Well, maybe not, but I won't quite agree to that, because if you only get 3,000 barrels of oil—

The CHAIRMAN (interposing). I am reliably informed that they are getting 20,000 now and may get more, but that is neither here nor there. This project has to do with a 3,000 barrel refinery which is of no value to 20,000 barrel production if you can't use it.

Congressman GAVIN. Anyway, from the reports or estimates made, 3,000 barrels is what I contend is estimated they have, at least from the figures.

Here is a picture in the New York Herald Tribune, a picture of the pipe line. "More than 550 miles of pipe are rushing oil to the Allied fighting machine in Alaska."

That is not so, is it, Mr. Secretary?

Secretary ICKES. I don't think so.

Congressman GAVIN.

* * * from the huge underground lake of petroleum resources at Fort Norman in northwest Canada. Here a Texas oilman checks the welding on the joints of a section of the pipe line which is feeding trucks using the Alaska Highway, Allied planes and ships off the northern shores.

Beautiful stuff, see. So I wrote the New York Herald Tribune and I said, "Where did you get that information? I would like to know where you secured the picture and where you got the information," and they referred me to the Acme Pictures Co., Inc., and here is what Acme Pictures Co., Inc., says.

DEAR MR. GAVIN:

this would really be funny if it didn't cost us \$138,000,000. It is something to think about—where we are spending this money.

Photograph Pla703106 to which you refer in your letter of the 17th, came to us from our London office, which in turn probably received it from the Canadian Government's representative in that city.

We can't get the information, but the Canadian Government has to submit the information to London, and London in turn releases it to the New York Herald Tribune. I just don't know whether this Union Now is union now, or whether we still—

Senator FERGUSON (interposing). The Secretary says he gets his information from London at times.

Congressman GAVIN. That is true. We both do.

Now I can't understand why it is necessary (and you might bring this question out) for the War Department to refuse Members of the Congress information concerning this project, and then permit the Canadian Government to blast out the information to the world as they did in their AP dispatch on May 19, 1943, at Ottawa. Why is it necessary for us to secure our information from Britain and Canada? I just don't understand this set-up.

The CHAIRMAN. We have been trying ever since this committee has been in existence to convince the War and Navy Departments that it is to their interest to take the Congress into their confidence on these things where they do not in any way interfere with tactics and strategy, which this evidently doesn't because it came to us by way of Canada and London and back again, even to the Petroleum Administrator, and I believe maybe when we get through with this program here the policy of the War Department may change.

Senator Ferguson, did you have a question?

Senator FERGUSON. Yes. Mr. Secretary, have you been consulted by the War Department about putting a larger line in than they are now putting in?

Secretary ICKES. No.

Senator FERGUSON. Have you been consulted about a larger refinery so that if there are more than 3,000 barrels, they could refine more oil?

Secretary ICKES. No.

Senator FERGUSON. Don't you think that in order to do that, you would have to consider what we are doing here in this country with refineries?

Secretary ICKES. Yes; that is the position we took. That was one of the bases for our objection to this right along, that it didn't relate to our own program, but of course we are studying with the Army now what to do with this oil, although I don't see what it will lead to if we have no right, title, or interest.

Senator KILGORE. If and when you get it!

Senator FERGUSON. You mean as a post-war picture?

Secretary ICKES. Yes.

Congressman GAVIN. Six months after the war you are out of the picture, so there is no use talking about that.

All I can say in conclusion—and I want to leave, Senator—is this: It looks to me as though we made a bad deal, we have a headache, and the thing for us to do is to discontinue future operations. Let's call it a day and pull out of there, bring our men home, bring our material back, and save as much of the American taxpayers' money as we possibly can. We are in there, it is too bad we got mixed up in it, we have spent our money, we haven't got anything; let's come back home, and if we have any money to spend, let's spend it in our own back yard. We can use a lot of it in the Pennsylvania grade crude area where there are a billion barrels waiting to be taken from the earth. Let's spend some of our money in our own back yard.

The CHAIRMAN. Thank you very much, Mr. Gavin.

That is all, Mr. Secretary, and thank you very much.

I will call the Director of the Budget, Mr. Smith. Mr. Smith, will you give your full name and official capacity for the record, please?

Mr. SMITH. Harold D. Smith, Director of the Budget.

The CHAIRMAN. Mr. Smith, you had a statement, I think, that you wanted to make to this committee on this Canol project.

STATEMENT OF HAROLD D. SMITH, DIRECTOR OF THE BUREAU OF THE BUDGET

BUREAU OF BUDGET REVIEW OF PROJECT

Mr. SMITH. Mr. Chairman, the statement that I have to make deals with our consideration of this project in the Bureau of the Budget.

The CHAIRMAN. That is what we were interested in, Mr. Smith.

Mr. SMITH. The Bureau of the Budget was first apprised of the War Department's petroleum activities in Canada during the hearings on the estimates of the War Department for the fiscal year 1943. On May 6, 1942, 1 day before the hearings were to be closed, an item under the appropriation "Engineer Service, Army," called the Norman to Whitehorse project, Canada, was added by the War Department. The sum of \$25,000,000 was requested to provide for the construction of military facilities from Norman to Whitehorse, Canada. The written justification stated only that complete engineering estimates were not available; that the construction was subject to survey and reconnaissance of the areas involved; that this was a strategic and operational project which had been ordered built as a military necessity; and that it was to be constructed by and under the supervision of engineer troops in accordance with a directive from the commanding general, Services of Supply. Representatives of the War Department stated orally that the project proposed the development of an oil field at Norman consisting of at least nine wells, the construction of a 4-inch pipe line, 400 miles long, from Norman to Whitehorse, and the purchase of a refinery in the United States for removal to Whitehorse.

It would be well to recall the chronology of a few events which took place in this general theater. About February 14, it was determined as a military necessity to construct the Alaska Military Highway from Dawson Creek, Alberta, to Fairbanks, Alaska. The first troops arrived to undertake this job about March 7. About April 20, the military authorities made the decision to take advantage of known oil resources in northwestern Canada for supplying the Alaska Highway and related installations. On May 6, the estimate I have just described was presented to us. A month later, almost to the day, the Japanese raided Dutch Harbor and, at about the same time, successfully occupied islands of the Aleutian chain.

About February 1943, information gathered by our examiners in the course of their normal work indicated that War Department activities in northwestern Canada were probably far more extensive than had been proposed at the 1943 Budget hearings. The examiners learned that the estimated cost of the project had risen to \$85,000,000 and that the War Department had initiated an oil-prospecting project in Canada, estimated to cost an additional \$10,000,000. It will be remembered that Congress had given the War Department broad latitude in selecting projects to be undertaken, and the practice of full justification prior to financing was not being adhered to in the early days of the war. However, because of the seemingly large increase

in the scope of this project, a decision was made in the Bureau to conduct a field inspection and to employ for this purpose a man properly qualified in petroleum technology.

The services of Mr. Robert W. Coghill, a petroleum consultant, were obtained from the Office of Economic Warfare. During the early part of March he reviewed the data available in Washington. On March 24, I notified the Secretary of War that we wished to make a field examination of construction projects under way in northwestern Canada and Alaska, to be started about April 1. I designated Mr. Curran, the examiner of my staff who handles Engineer Corps estimates to make the examination. Mr. Coghill was to accompany him as a technical adviser.

Mr. Coghill proceeded to California to obtain certain data and while he was there we learned that the War Production Board had been concerned with material requirements of the Army activities in question. The field examination was postponed while staff members studied the War Production Board data available here in Washington. It was concluded after this study, however, that a field examination was still desirable. Accordingly, on April 9, I informed the Secretary of War that the representatives of my office would proceed to Edmonton to review construction activities directed from that point.

The men arrived in Edmonton on April 13 and with an Army officer assigned to accompany them spent the period to April 24 in the field. In addition to visiting installations at Edmonton and studying the records made available to them, they went to Whitehorse and made an inspection trip by air over a portion of the Canol work in that vicinity. Upon their return to Washington, they prepared reports which reached me about May 24.

On June 2 I referred copies of the reports to the Secretary of War. In an accompanying letter I pointed out that while the 1943 estimates proposed \$25,000,000 for the complete Canol project, the 1944 estimates, which had then been presented, showed that 1943 obligations would amount to \$65,300,000, and 1944 requirements would be \$53,780,000—a total of \$119,080,000. I wrote [reading Exhibit No. 1123]:

The extreme solutions to the problem seem to be, on the one hand, to carry forward the program as planned, and, on the other, to stop the entire project and supply the same quantity of gasoline by seven tanker loads a year moving along the inner water passage from the south to the Skagway pipe line. Perhaps the proper answer lies between the two.

There seemed to be several alternatives to completing the project as originally planned: The prospecting could be stopped; the further expansion of the Norman wells field could be stopped; the thermal cracking unit could be eliminated from the refinery which had not yet been constructed. Any of these would have been in the nature of a retrenchment or a cut-back, but not an abandonment of the project. Beyond this, it was still possible to discontinue work of laying the Norman to White Horse pipe line. Further, it was possible to eliminate construction of the refinery at White Horse. Had either of these latter things been done, the 16 new wells developed at Norman fields by the United States would have been a complete loss, so far as this Government is concerned.

This was June 1943. The strategic situation was considerably different from that of a year earlier. Our armies were on the offensive. The danger of invasion of our own shores seemed more remote.

The Navy had control of the eastern Pacific. Seacoast defenses and works in northwest Canada were of less importance. It seemed to us that our efforts and expenditure of materials on incompletd defense projects in this area could be somewhat reduced.

I informed the Chairman of the War Production Board and the Petroleum Administrator for War that I had submitted the reports to the War Department, and that I would give them further advice upon receipt of a reply from the War Department. On June 21 I received a letter from the Petroleum Administrator for War expressing concern about the project. I referred a copy of this letter to the Secretary of War for his information.

On July 27 the War Department replied that the correspondence and the reports had been studied by both the War Department General Staff and the Army Service Forces, and that as a result the entire Canol project had been reconsidered in the light of the information and recommendations contained in those letters and reports. The Acting Secretary, in this letter, stated that suspension of the project was not practicable but that certain eliminations had been decided upon that would reduce the total estimated cost to \$88,000,000. He stated [reading from Exhibit No. 1125]:

Military necessity requires that the Canol project be completed as rapidly as possible.

Senator FERGUSON. Mr. Smith, was that a total cost of \$88,000,000, or from that date on?

Mr. SMITH. I take it that that was the statement at the time I received that letter from the War Department.

On August 10 I wrote the Chairman of the War Production Board and Petroleum Administrator for War, sending them copies of the reports made by the Bureau and copies of the War Department reply. About 2 weeks later, upon the request of this committee, I sent the Budget file copies of the reports to you.

Secretary Ickes wrote me on September 20 suggesting that a meeting be arranged of representatives of the Bureau of the Budget, the War Department, and the Petroleum Administration for War to discuss the Canol project. Before arrangements for the meeting could be made we learned that the Director of War Mobilization, Mr. Byrnes, had instructed that the scope of the project be studied by the Joint Army-Navy Production Review Committee, an agency of the Joint Chiefs of Staff, and I think a new agency at that time. Accordingly we wrote Mr. Ickes on October 13, suggesting that the proposed meeting be delayed until the Joint Board had an opportunity to make its recommendations.

Our discussions of this project with the War Department have not dealt specifically with the provisions of the various contracts for the construction, development, and operation of the oil facilities. So much of the final results are dependent upon unknown and changing factors that it seemed appropriate to delay detailed consideration of the contracts until the definite size of the operation was known. Renegotiation of the contracts can be effected upon a much sounder basis with more accurate information concerning the full capacity of the field and other important variables. As a part of the normal process of Budget review, the War Department will be expected to defend the provisions of the contracts at the hearings on the Budget

estimates for the fiscal year 1945. These hearings will commence soon after the first of the year.

The United States has made certain agreements with the Dominion of Canada to make possible the prosecution of this work. These were negotiated through diplomatic channels, and I, therefore, considered them outside the province of the Bureau of the Budget.

Mr. Chairman, that completes my formal statement.

(The documents referred to by Mr. Smith were marked "Exhibits Nos. 1121 to 1128" and are included in the appendix on pp. 9861-9866.)

The CHAIRMAN. Senator Kilgore, do you have a question?

Senator KILGORE. As I understand it, then, the estimates furnished you originally for the expenditures for the year 1943 far exceeded the estimate furnished you by the Army originally on what they were going to spend in the year 1943 on the project; is that right?

Mr. SMITH. That is quite right.

Senator KILGORE. About what percentage?

Mr. SMITH. I wouldn't know offhand the percentage. The estimate was 25 million at the time it was presented to us. That would make the increase about 160 percent. That, as I indicated, comes about by reason of the fact that the War Department has under its appropriations considerable latitude, and must have, in adjusting allotments to the requirements of a particular situation.

Senator KILGORE. You state that you got a report from the expert you sent in there on May 24—was that 1943?

Mr. SMITH. 1943; yes.

Senator KILGORE. And that you submitted it to the Secretary of War on June 1?

Mr. SMITH. Yes.

Senator KILGORE. What was the nature of that report that you received from your experts on the feasibility of the project?

Mr. SMITH. That was a technical report, which is in the possession of the committee here.¹

Senator KILGORE. But leaving the technicalities out, in substance, did it recommend the project as a solution to the situation, viewing it in the light of May 24, 1943?

Mr. SMITH. As I recall, it did not. I gave this committee the only copy of the report that I had, and therefore I haven't had a chance to review it since then.

Senator KILGORE. And that report was made by an engineer from your staff in conjunction with an oil consultant who went to Edmonton and took the figures, and then made a partial aerial survey of the area involved?

Mr. SMITH. That is right.

Senator KILGORE. Was Norman Wells investigated by those people, by your people?

Mr. CURRAN.² No.

Senator KILGORE. You were not in Norman Wells?

Mr. CURRAN. No.

Senator KILGORE. The present features up there, as I understand, fit into the barge or tanker transportation system insofar as products distribution is concerned; is that not right?

¹ Exhibit No. 1091, on file with the committee.

² Charles D. Curran, principal budget examiner, Bureau of the Budget.

Mr. SMITH. I am not really prepared to testify on the technical aspects of this subject.

Senator KILGORE. What I am getting at is this: Your products distribution lines now based on the Alcan Highway and Skagway really fit the tanker proposition, is that not right—transportation in by tanker?

Mr. SMITH. I would think so, but I am not well enough informed on that question to give you an answer.

Senator KILGORE. Do you know?

Mr. CURRAN. A part of the pipe lines were constructed for that purpose, and at the time we were up there, the line did run from Skagway to Carcross, and lines were being constructed from Carcross south to Watson Lake and north to Fairbanks for distribution, which would be as you said.

Senator KILGORE. Did your survey show the amount of material that was being shipped in to take care of this line, this project—the tonnage?

Mr. SMITH. No.

Senator KILGORE. Did it go into the necessary cost of access highways to lay the line and also to get the material into Norman wells?

Mr. SMITH. No, we didn't go into it in that detail. We had sufficient question about this project that we felt we should put it up to the War Department pretty specifically and definitely as to whether the War Department felt that the project was of such strategic importance as to continue in some form and to what extent, and we ended consideration of the project when the War Department replied that the project was strategically important. That is about where our consideration as of this date stopped.

Senator KILGORE. Did you investigate the number of access roads built to get material into Norman wells alone?

Mr. SMITH. No.

Senator KILGORE. Or the mileage, or the cost per mile?

Mr. CURRAN. Just the general figures.

Senator KILGORE. You knew there were two alternate winter routes and one summer route built?

Mr. SMITH. We didn't, in the short time we had, go into the details of design or access to the project, which I assumed was related to some extent to the total project.

Senator KILGORE. You simply went into the over-all cost?

Mr. SMITH. That is right.

The CHAIRMAN. You were simply doing your job as the budget officer, and you didn't go into the details or the technic of the thing. You depended on the Army and whoever was doing it to furnish the details?

Mr. SMITH. We didn't have a sufficient force to go into the engineering side.

Senator KILGORE. You knew, of course, that the Houdry process as originally planned would produce more than twice as much 100-octane gasoline as the process that is being installed, did you not?

Mr. SMITH. No; I did not.

Senator KILGORE. In fact, more than that. With the Houdry process you would get 1,505 barrels per day of 100-octane gasoline, and 479 barrels by the present process—more than three times as much.

The comparison in motor fuel is 416 barrels a day by the Houdry process; 1,018 by the present process. Do you know why the Houdry process was dropped?

Mr. SMITH. I do not. From my point of view, I would consider that decision a responsibility, you see, of the operating agency.

Senator KILGORE. As a matter of fact, I believe your report showed that your estimate of the situation that was handed in to the Secretary of War contemplated the Houdry process.

Mr. SMITH. It may be.

Senator KILGORE. I wondered if you knew that the Houdry process idea has been abandoned on the refinery and we are on a straight cracking process which will produce one-third as much high-octane gasoline.

Mr. CURRAN. That is what is being done. The Houdry was originally contemplated, and as I recall, the opinion of the people handling it was that they were going to have to import gasoline and other petroleum products anyway, so they were going to eliminate the Houdry process to get, while a lesser aviation gasoline return, a greater overall return from what petroleum they had there.

Senator KILGORE. Then they were seeking more motor gasoline and less aviation gasoline?

Mr. CURRAN. Just more usable products. I don't know enough about the products to go into detail.

Senator KILGORE. The principal need alleged to you for that was the need for aviation gasoline, was it not?

Mr. CURRAN. The principal need for the Houdry process?

Senator KILGORE. No; the principal need for the whole project was the production of aviation gasoline.

Mr. CURRAN. Yes; the principal need was aviation gasoline.

Senator KILGORE. Did you ever figure just how much the production of that plant, the daily production, meant in terms of plane-hours?

Mr. CURRAN. No, sir, not in plane-hours, but we did as compared with some other figures; for instance, 1,505 barrels a day would amount to about 120 tons, and a good tow load on the Mississippi River amounts to 13,000 tons.

Senator KILGORE. Under the present process, it might interest you to know there is just about enough gasoline to send 10 big bombers out on a mission, that would be produced per day by the plant. Therefore, it would be necessary to supplement that for any purpose. In fact, this would be supplemental if the defense of Alaska were contemplated from behind the mountains.

Mr. SMITH. I think it is fair to say that at the time the project was undertaken there was a good deal of scurrying around for new sources of oil and gasoline, speculative and so on.

Senator KILGORE. That is right. Did your experts study the possibilities of putting a refinery in Fairbanks rather than at Whitehorse, as to relative costs, Fairbanks being in Alaska and Whitehorse being in Canada?

Mr. CURRAN. We didn't go into the cost of that. We just raised the question as to whether or not that should have been considered, or should still be considered.

Senator KILGORE. Were any surveys shown to you showing the difficulties of building the White Horse line—pipe line—as compared with the difficulties of building one in Fairbanks?

Mr. CURRAN. No. The one argument was that anything going into Fairbanks from Norman wells would lie largely above the Arctic Circle, and that was objectionable to most of the people we talked to.

Senator FERGUSON. Why was that objectionable?

Mr. CURRAN. I don't know why it was so considered.

Senator KILGORE. Did they give you the low temperatures in the winter on the selected route?

Mr. CURRAN. Yes; as -70° Fahrenheit.

Senator KILGORE. Did they give you the low temperatures on the Fairbanks route?

Mr. CURRAN. No.

Senator KILGORE. I doubt if you will find any below -70 on that route.

I think that is all.

Senator FERGUSON. Did you, Mr. Smith, go into the question of the cost of the highway in comparison to the Budget figures previously given you?

Mr. SMITH. I don't think I have those figures.

Mr. CURRAN. We have \$100,000,000 as the amount the Army set up that it would allocate to Public Roads Administration, and, so far as I know, that is the limit that the Army has held to.

Senator FERGUSON. Do you know the actual cost to date?

Mr. CURRAN. No; because the cost will come from several different elements. Getting down to an actual engineering cost, I think that will be impossible to figure because a large part of the work was done with troop labor.

Senator FERGUSON. When we get to the Budget, do you figure in the cost of the troop labor?

Mr. CURRAN. No.

Senator FERGUSON. The Army services; that is, the generals and the commanding officers, the Engineer troops, and so forth?

Mr. CURRAN. No; those are set up as part of the Military Establishment, and it is up to the military authorities to use them as they see fit.

Senator FERGUSON. But is that part of this so-called twenty-five million that we start out with?

Mr. CURRAN. Oh, no, sir. That twenty-five million was in the appropriation under the title "Engineer Service, Army," and that would procure just certain supplies, materials, and services over and above the pay, quarters, food, transportation, and anything of the kind for military personnel.

Senator FERGUSON. So you didn't go into the question of actual cost of this project?

Mr. CURRAN. No; not into the actual cost, trying to break out how much of the Army was involved.

Senator KILGORE. Could I interject a question there? The figures that you now have for 1943 do not include troop labor?

Mr. CURRAN. No; they don't involve that.

Senator KILGORE. That is still outside cost?

Mr. CURRAN. Yes; that would be contractor's cost—materials and anything over and above what is regularly part of the Army.

Senator KILGORE. Do you know who has the major portion of those contracts up there on the pipe-line construction and the road construction, outside of what has been built by service troops?

Mr. CURRAN. Bechtel-Price-Callahan.

Senator KILGORE. How about the road construction?

Mr. CURRAN. I don't know. I understand there are about 75 different contractors—

Senator KILGORE (interposing). I mean access roads down to the pipe line. Bechtel-Price-Callahan built the access road to the pipe line, too, didn't they?

Mr. CURRAN. Yes—I see what you mean, down the McKenzie River.

Senator KILGORE. The one from which they distribute the pipe. You must have a highway to haul your pipe in to the line or distribute it, put it in place, before you can lay it, and that must parallel the road close enough to be reached.

Mr. CURRAN. That is right; yes.

Senator FERGUSON. Was that figured as part of the cost of the Canol project or part of the cost of the highway, that particular road that went across to Norman wells?

Mr. CURRAN. As I understand it, that is part of the Canol project.

Senator FERGUSON. That is part of the Canol?

Mr. CURRAN. Yes, sir.

Senator FERGUSON. And where they had to straighten the railway from Skagway, was that part of Canol?

Mr. CURRAN. I don't know in detail whether that came in there or whether that was a Transportation Corps activity tied in with the Northwest Service Command.

Senator FERGUSON. Do you know whether or not this was a cost-plus contract on the pipe and refinery, and so forth?

Mr. CURRAN. Yes; the information given us at the time we were up there was that it was cost plus fixed fee.

Senator FERGUSON. Did you go personally to Edmonton?

Mr. CURRAN. Yes, sir; I did.

Senator FERGUSON. Did you see the Redwood Building?

Mr. CURRAN. Yes, sir.

Senator FERGUSON. Did you figure the cost of the Redwood Building in Edmonton?

Mr. CURRAN. No; I didn't figure it.

Senator FERGUSON. How much were you told it cost?

Mr. CURRAN. The entire amount, as I recall, of all the construction activities of the Northwest Division headquarters in Edmonton was about \$900,000.

Senator FERGUSON. But did you get any figure on the cost of that building?

Mr. CURRAN. Which one do you mean, sir? There is the office building of Bechtel-Price-Callahan.

Senator FERGUSON. Yes, the so-called Redwood Building, in Edmonton.

Mr. CURRAN. There are several redwood buildings, including personnel quarters at division headquarters.

Senator FERGUSON. I am talking about the office building.

Mr. CURRAN. No, sir; as a specific building I don't know what that cost.

Senator FERGUSON. Did you learn that that was also built on lease-lend and would revert?

Mr. CURRAN. No; I didn't go into that question of lease-lend at all.

Senator FERGUSON. Do you know how the costs on this cost-plus contract were running in Canada?

Mr. CURRAN. How do you mean?

Senator FERGUSON. For instance, were they paying much higher wages than they pay here? Did you learn that they paid \$1,000 a month to truckdrivers?

Mr. CURRAN. No; I didn't ask that question. No one informed me or volunteered that information. We didn't go down into that detail.

Senator FERGUSON. What did you do when you went to the Bechtel office, just take their gross figures?

Mr. CURRAN. We went to the Bechtel office along with other offices, to obtain the general information. Here in Washington the War Department was unable to supply us with information as to the status of the project and what was involved in the contracts. They told us that as a result of the decentralization that had been effected, all the records were in Edmonton and they could give us practically nothing except a general figure. As a matter of fact, what they had submitted for 1944 estimates at that time was a lump-sum figure of \$175,000,000 for the Northwest Service Command. They could not give a break-down of what that amounted to at that time. That figure apparently had been submitted by the field and that was what the Department wanted.

Senator FERGUSON. Could the large costs, though, have been the reason for the increase from the 25 million estimate to an 88 million estimate?

Mr. CURRAN. In my opinion, I wouldn't say that was the only reason.

Senator FERGUSON. Was that part of it? Did you make a search to ascertain if that was part of it?

Mr. CURRAN. Let me put it this way: I am not trying to avoid an answer, but the picture I got was that the \$25,000,000 was an estimate for a refinery and a pipe line about 400 miles long. They later found that was 550 miles, for one thing. They were going to have to build access roads along the Mackenzie River; they were going to have to put in a barge line down the Mackenzie River; they were going to put in airfields for communication along there. In other words, the whole project grew to a far greater scope than that of constructing a pipe line and refinery.

The CHAIRMAN. Somebody drew a line on the map and got 25 million to build a pipe line and went up and found the terrain, and access to the project cost more than that, and kept adding to it?

Mr. CURRAN. Yes; they found to get anything to Norman Wells they were going to have a thousand miles of waterway to operate their boat lines over and were going to have the problem of winter roads when the boat lines couldn't operate.

The CHAIRMAN. I wonder if I could ask Mr. Smith a question at this point, Senator.

You were the Budget officer for the Government of the United States, and it is usually customary for you to furnish the Congress with these Budget items when they are asked for. Was any of this information ever presented to the Congress of the United States, to either one of the Appropriations Committees?

Mr. SMITH. It was presented, I assumed, in connection with the first appropriation of \$25,000,000.

The CHAIRMAN. How much was called for in that request, do you remember?

Mr. SMITH. Twenty-five million, I think. That is all that has ever been asked for.

The CHAIRMAN. How much information was given to the Appropriations Committee at that time on the subject?

Mr. CURRAN. That is just about as much as Mr. Smith gave in the first paragraph of his statement.

The CHAIRMAN. That is what I was particularly interested in.

Mr. SMITH. You see, beyond that, the War Department, under its other appropriations and the flexibility of transfer between appropriations, could add to this project once it was authorized, to that extent.

Senator FERGUSON. Mr. Smith or Mr. Curran, did you learn that the cost of Redwood Building was \$259,820?

Mr. CURRAN. No, sir; I did not. I didn't go into the cost of any individual structure at all.

Senator FERGUSON. When a man has a cost-plus contract and he builds an office building so as to complete the project, the cost of that building goes in as part of the cost plus, isn't that true?

Mr. CURRAN. It depends. It might be just part of the plus.

Senator FERGUSON. Just part of the plus?

Mr. CURRAN. Yes.

Senator FERGUSON. What is the distinction between part of the cost and part of the plus? That isn't "plush," is it?

Mr. CURRAN. No, sir. What I mean is that a contractor has the project he is working on; his facilities for carrying on the project could be a cost chargeable to him.

Senator FERGUSON. Are you sure about that?

Mr. CURRAN. No. That is just sometimes. Some of the contractor's expenses are reimbursable, others are nonreimbursable. How it was in this instance I don't know.

Senator FERGUSON. Do you know that they had to bring the redwood from California up to Edmonton to build this, instead of using wood that they could obtain in Canada.

Mr. CURRAN. Yes, and I raised that question up there.

Senator FERGUSON. What did you find out about that question?

Mr. CURRAN. I was informed that was surplus property; that it was a saving to use it up there.

Senator FERGUSON. In other words, they made a saving, but the office building still cost \$259,820.

Mr. CURRAN. I don't know about that.

Senator FERGUSON. What about the shipping? That was shipped up there at a time when we were very short on our shipping facilities, isn't that true?

Mr. CURRAN. Yes; as I understand it.

Senator FERGUSON. The record ought to show what this building is. It is a temporary office building in Edmonton for the Bechtel-Price-Callahan Co. in the construction of this pipe line.

Now, Edmonton is how far from White Horse?

Mr. CURRAN. About a thousand miles.

Senator FERGUSON. A thousand miles. Do you know why the office building was not put at White Horse where the project is?

Mr. CURRAN. No; I don't; no factual reason, but Edmonton is a rail-head for a part of the area where work was undertaken.

Senator FERGUSON. I think we should put this in the record [reading from Exhibit No. 1094]:

At the October 26 hearing on Canol, the committee asked for certain information with respect to the so-called Bechtel-Price-Callahan office building in Edmonton, the Redwood Building.

The building had a gross cost of \$259,820, and a net cost of \$219,833, exclusive of furnishings. The net cost represents the direct cost to Bechtel-Price-Callahan. The gross cost includes architect-engineers' plans and specifications and inspection, Bechtel-Price-Callahan general overhead and United States Engineer Department general operating expenses. The architect-engineer costs are charged to engineering. Bechtel-Price-Callahan and United States Engineer Department costs above-mentioned are charged to overhead. Cost of the furnishings was \$30,000, which is charged to office furniture and rentals account. The cost of the building and upkeep is charged to the Canol project.

The land on which the building is located is owned by the city of Edmonton and a monthly rental of \$50 is charged. In addition, the lessee is required to pay taxes, which for 1943 are estimated at \$4,000. The lease runs until October 31, 1944. The contractor has a right to purchase the land for \$6,500. The Government has the right to salvage the building and, if it is not removed and salvaged, it becomes the property of the city of Edmonton; salvage proceeds will be retained by the Government. To conform to city fire regulations, Bechtel-Price-Callahan are required to stucco the building if it is turned over to the city of Edmonton. The cost of stuccoing, if the work is done, is estimated at \$4,000, for which amount the contractor will be reimbursed.

You didn't go into the facts on that?

Mr. CURRAN. No, not all. What we looked at was the whole Canol project, rather than these various items.

The CHAIRMAN. What you were trying to find out was why the estimate had been increased from \$25,000,000, which had been put up to Congress, to 88 million, as you have said.

Mr. CURRAN. Yes. We wanted to find out what the estimate included, what the project involved, how far along it was, and whether it could be curtailed.

Senator FERGUSON. Have you been asked for your advice on curtailing it?

Mr. CURRAN. I have written a report on it, and Mr. Smith has transmitted it to the War Production Board, the Petroleum Administrator for War, Secretary of War, and this committee.

(The report referred to was marked "Exhibit No. 1129" and is included in the appendix on p. 9867.)

Senator KILGORE. I think you stated a little earlier in your testimony that there was a total of \$900,000 worth of this redwood construction at Edmonton.

Mr. CURRAN. That is the figure, as I recall.

Senator KILGORE. And the reason for using California redwood was the fact that there was a surplus of it down there, which the Army had to ship up there, rather than buy new lumber?

Mr. CURRAN. As I recall, a surplus from some ordnance construction.

Senator KILGORE. Did they tell you where the ordnance construction was?

Mr. CURRAN. No, sir.

Senator KILGORE. Did you endeavor to ascertain whether or not the freight on that would have been far more than the cost of new lumber down in Edmonton, based on distances?

Mr. CURRAN. No; I did not ask that, particularly.

Senator KILGORE. How far is Edmonton north of Portland?

Mr. CURRAN. Five or six hundred miles.

Senator KILGORE. And by rail, it would be much farther; is that right?

Mr. CURRAN. That is right, because the rail is not direct.

Senator KILGORE. That is all I have.

The CHAIRMAN. Thank you, Mr. Smith and Mr. Curran. Mr. Whitney of the War Production Board.

TESTIMONY OF H. LeROY WHITNEY, TECHNICAL CONSULTANT, WAR PRODUCTION BOARD

REVIEW OF REQUIREMENTS AND FACILITIES FOR PROJECT

The CHAIRMAN. Mr. Whitney, I believe you have a statement you want to make to the committee.

Mr. WHITNEY. I have a brief statement, sir.

The CHAIRMAN. Will you proceed with it?

Mr. WHITNEY. Mr. Senator, I am glad to appear before the committee this morning to state the facts as I know them concerning the Canol project. In accordance with the committee's specific request, I have also brought with me the War Production Board's complete file on this subject, which includes all pertinent documents and correspondence.

Mr. FULTON. Mr. Whitney, will you first describe your position with the War Production Board and your function with respect to Canol?

Mr. WHITNEY. I am technical consultant to the Chairman of the War Production Board.

Mr. FULTON. And today you are appearing on behalf of the War Production Board to give facts with respect to Canol, so far as they are within the knowledge of the War Production Board?

Mr. WHITNEY. I am, sir.

The CHAIRMAN. Continue, please.

Mr. WHITNEY. Among these papers are some covering the history of our activities relative to this project prior to the institution of my own investigation, which began in February of this year. I believe that the committee, since it has already studied most of these papers, would not wish me to cover the events prior to February.

Mr. FULTON. Mr. Whitney, I think the committee would like you to start from the inception, though, as far as the War Production Board is concerned. In other words, we are really more interested in the events prior to February of 1943 than in the events subsequent to that time.

Mr. WHITNEY. Very well, sir. I think the most pertinent documents that we have prior to February is War Production Board Document No. 183, pages 1 and 2. This is a report of the War Production Board on the operations of the Facilities Bureau, dated January 11, 1943.

Item II. Essentiality revaluation.

Because considerable construction undertaken in 1942 or earlier no longer meets today's more rigid standards of essentiality, Chairman Nelson in October ordered a halt in some categories of construction work not "directly essential to the war effort" and instructed that priority assistance to a large part of the nonmilitary construction be revoked. At the same time he ordered a review of

all military projects with a view toward curtailment, notifying the heads of the War, Navy, Interior, Agriculture, and Commerce Departments, Maritime Commission, Federal Works Agency, and Tennessee Valley Authority of his action. Mr. Nelson pointed out that if present construction were carried out it would absorb between one-fifth and one-fourth of the total war effort.

(The report referred to was marked "Exhibit No. 1130" and is on file with the committee.)

Mr. WHITNEY. The next document is the minutes of the forty-sixth meeting of the War Production Board, on January 12, 1943. I read from pages 4 and 5:

Mr. Searls stated that the original letters establishing the Facility Board and Committee assumed that command construction would be approved by the Board and the Committee. The Navy has submitted its command construction and has not been handicaped by procedural delays. The Army has not submitted its command construction, and Mr. Searls pointed out that the command projects of the Army could be reduced only by a slower rate of induction and a smaller size of the Army.

Mr. Searls reported that the road project and the collateral pipe-line and oil-field development in Alaska, calling for \$200 million of new construction, have never been presented to the War Production Board, the Requirements Committee, or the Facilities Bureau for review, which he felt should have been done, and should still be done, and he expressed the view that these projects are not advisable and the materials devoted to their construction could better be used for essential civilian purposes.

(The document referred to was marked "Exhibit No. 1131" and is on file with the committee.)

Mr. FULTON. Does that mean that prior to January 1943 this project had never been taken up with the War Production Board?

Mr. WHITNEY. It had never been taken up prior to that date and has never been taken up since.

Mr. FULTON. You have no records of any kind before that date? Can you explain how a project—

Senator FERGUSON (interposing). I don't think he answered that question, so the record will show it.

Mr. WHITNEY. Prior to that, on December 16, 1942, the Chairman of the Facilities Board, the War Production Board, wrote to the Under Secretary of War, the Under Secretary of the Navy, the Chairman of the United States Maritime Commission, and the Program Vice Chairman, War Production Board, as follows:

The outcome of the meeting held on December 1, at which was discussed the effort made by the Services in cut-back of facilities in response to Mr. Nelson's letter of October 20, was such that I believe a report is due you from me on the outcome of subsequent discussions.

It then covers in some detail the extent to which cut-backs had so far been effected, and then goes on to say, on page 3, as follows:

You will recall that construction which agitated me most at the time of our meeting was construction in Alaska.

That concerned both the Alcan Highway and the Canol project.

(The letter referred to was marked "Exhibit No. 1132" and is included in the appendix on p. 9873.)

The CHAIRMAN. And the reply to that inquiry was the first you knew of this Canol project, officially?

Mr. WHITNEY. Yes, sir.

Mr. FULTON. Now, is there any record of the statement which was made at the earlier meeting by Mr. Nelson on the Canol project?

Mr. E. A. LOCKE (assistant to the Chairman, War Production Board). In connection with Mr. Nelson's activities in getting the whole construction program reduced, we came across this Canol project in the fall of 1942, and after certain preliminary conversations wrote to the Under Secretaries of War and Navy and the Chairman of the Maritime Commission, stating our position in connection with this project, and that is the letter of December 16, from which Mr. Whitney was just reading.

Mr. FULTON. Does that mean the project of this magnitude was conceived and undertaken in the early spring, or April or May of 1942, and that the War Production Board itself just came across it, as you referred to it, in the fall?

Mr. LOCKE. Yes, sir; and I think that will come out in this correspondence. It is stated quite clearly.

Mr. FULTON. How would a project of this type get its facilities and requirements without the approval of the War Production Board?

Mr. LOCKE. Prior to this period, the Army and Navy had the authority, delegated by us, to assign their own priorities to such projects.

Mr. FULTON. And they had not even informed you that they had assigned priorities to projects of this size?

Mr. LOCKE. To my knowledge, sir, we had not been informed of this particular one.

Mr. FULTON. In other words, you had delegated the right to make priorities and they had not seen fit to inform you that pursuant to that they had issued these priorities, even though this was a project of this magnitude?

Mr. LOCKE. So far as I know, sir.

The CHAIRMAN. And you would know if you had been informed before that time?

Mr. LOCKE. Yes. We found out about it in the late summer of 1942.

Mr. FULTON. How did you find out about it?

Mr. LOCKE. I think some individual in our planning committee staff advised us about it.

Mr. FULTON. Did he find out by happening to talk with one of the companies which was doing something on the project?

Mr. LOCKE. I do not know, sir.

Mr. FULTON. Or did the War Department furnish it to him?

Mr. LOCKE. I think he found out on his own.

Mr. FULTON. You heard Mr. Ickes testify that as far as his agency was concerned, they found it out through accidental discussion with one of the companies involved?

Mr. LOCKE. Yes, sir.

Mr. FULTON. Perhaps the same thing occurred in the War Production Board.

Mr. LOCKE. Perhaps so.

Mr. FULTON. And that was in the fall of '42. Then, as I understood you, Mr. Nelson objected to the project.

Mr. LOCKE. No, sir. He had undertaken a program of reducing, where possible, the size of the whole facilities and construction program, and in line with that the Chairman of the Facilities Board addressed letters to the War Department and to other agencies, and among the projects to which he devoted particular attention was this Canol project.

Mr. FULTON. Mr. Whitney, could you give us the full detail of everything the War Production Board said or did with respect to this Canol project?

Mr. WHITNEY. Yes, sir.

The CHAIRMAN. Proceed, Mr. Whitney.

Mr. WHITNEY. I quote from the letter of the Chairman of the Facilities Board of the War Production Board, dated December 16. I go down to the next to the last paragraph, which reads [reading from Exhibit No. 1132]:

The general impression left with me by General Harrison is that this entire Alaskan development rests on such "strategic reasons" that it is not susceptible to review by the War Production Board, or at least that such review would be likely to lead to no modification or cancelation of any part of the program. That is where the matter stands at the present time. There is manifestly no advantage in a review of the essentiality of these projects or the feasibility of their use when completed, if the discussion is to be purely academic. I would appreciate your views in respect to this matter.

Mr. FULTON. Does that mean that the War Department had refused to discuss the reasons underlying the project with the War Production Board?

Mr. LOCKE. There had been some discussions at previous meetings at which I was not present nor Mr. Whitney, and they were conducted on our part by Mr. Fred Searls, who is no longer with the War Production Board. I believe that summarized the general gist of the discussion up to that time; that the Army felt this was based on strategic reasons and therefore not susceptible to review by us.

Mr. FULTON. What was strategic about it except the location?

Mr. LOCKE. I don't know.

Mr. FULTON. The pipe line itself was made of standard pipe-line materials; the refinery was a standard refinery. The operations generally would not be particularly different from anything else, except for the location.

Mr. LOCKE. It was in an area which at that time was fairly close to active military operations.

Mr. FULTON. But you did know the area?

Mr. LOCKE. Yes, sir.

The CHAIRMAN. Proceed, Mr. Whitney.

Mr. WHITNEY. On January 3, the Chairman of the Facilities Board wrote again to the Under Secretary of War, the Under Secretary of the Navy, the Chairman of the United States Maritime Commission and the Program Vice Chairman of the War Production Board, as follows [reading from Exhibit No. 1133]:

GENTLEMEN: In response to my letter of December 16, having to do with the review of facilities and construction of the Army, the Under Secretary of War answered on December 19, as per appended copy. I have delayed response to his letter in order to make further inquiry and elicit further opinions from other experienced Alaskan operators as to the feasibility of the Alaskan program of the Services of Supply, including the Canol project, the Alcan Highway, and the general question of the movement of supplies overland from Canada to Seward or Teller. Such inquiries have, of course, been of a guarded nature, but have served to confirm my own opinion that the entire program will subtract from, rather than add to, the war effort.

Judge Patterson's letter, paragraph 1, confirms the statement of General Harrison that the Alaskan developments under construction have been undertaken basically for "strategic reasons." This infers that reliance must be placed on the facilities being projected, under certain possible contingencies. If, as a matter of fact, physical conditions are such that reliance cannot be placed on

the facilities, then the "strategic reasons" are unsound, and it follows that experienced civilian opinion and comment are entitled to be heard—even though persons making the comment have not been acquainted with the details of the military thought, and planning for utilization of the facilities. The more urgent the reasons for use of such facilities, the more desirable is it to know in advance of their creation, whether they will, in fact, permit of the use intended after they have been created. If, in fact, the expenditure of materials, equipment, and manpower that are necessarily included in this program, which will cost in excess of \$200,000,000, will lead to the establishment of a line of communication which will be unusable, then it does not matter whether the intention is to provide an emergency route to Asia or to the Alaskan peninsula, and it does become a matter of concern to other agencies competing for the material and manpower involved, as to whether the program is feasible within reasonable conceptions of the duration of the war.

I believe it to be true that no portion of the Alaskan project, including the Canol project, has ever been submitted to the Requirements Committee or to any other agency within the War Production Board or scrutinized by other agencies represented on the Requirements Committee.

The rest of the several paragraphs have to do with Alcan, and we will go to the last four paragraphs.

Mr. FULTON. Could you put those in as part of the record?

The CHAIRMAN. We will add the complete letters to the record.

(The letters referred to were marked "Exhibits Nos 1133 to 1136," and are included in the appendix on pp. 9875-9879.)

The CHAIRMAN. Go ahead, Mr. Whitney.

Mr. WHITNEY. The letter continues [reading further from Exhibit No. 1133]:

It is not the purpose of this memorandum to discuss the merits of the projected oil field developments ordered by General Somervell's directive of November 16. There is considerable room for doubt that any large fields will be found, but it is certain that even if they are found, there will be required such large additional expenditures of equipment and manpower to bring them in and make oil available from this remote region, that their development ought not to be considered as a military measure, at least during the year 1943.

It is urgently recommended that this entire program be submitted to the Requirements Committee of the War Production Board. It is not a secret program, for it has been subject to comment in various published articles, and will receive additional publicity, not all of which will be as favorable as that which has so far appeared. It is pretty certain to be investigated by the Congress. If it is a failure, as is freely predicted in this letter, the public criticism will attach not only to the Army but to the War Production Board, which has never passed on the project.

If the Army has sound reasons for defending the program, there should be no reluctance to presenting it to the Requirements Committee, which can, if necessary, hold a secret session for the purpose.

If this is not done, it is the writer's opinion that a record is left that the War Production Board stopped hundreds of useful, though not essential, civilian projects to save material, only to have it used for a huge and useless program in Alaska, of which it has never had official cognizance, and which will never serve a useful purpose.

Mr. FULTON. What reply was made to that by General Somervell?

Senator FERGUSON. Did they later submit a reply to that?

Mr. WHITNEY. On January 14, Under Secretary Patterson replied. I do not think the first part of the letter is particularly pertinent to read now, but it will all be in the record. I want to read the last two paragraphs [reading from Exhibit No. 1135]:

I have gone into the matter at some length because of personal consideration for you. At the same time I should point out that the War Department by no means concedes that a project of this nature, the building of a military highway to a remote region under danger of hostile attack in time of war, is a project which the War Department is called upon to explain or to justify to the

Requirements Committee or the Facilities Board. The project was one of military strategy, just as the construction of a highway in north Africa or New Guinea would be. The thought that a fortification, a line of air fields or a line of military communication deemed necessary by the Army to the effective conduct of the war should be reviewed as to its necessity by officials of the Requirements Committee or the Facilities Board is not countenanced.

The Canol project is separate but in like case with the highway. It is a considered effort to serve the several air fields along the airway and possibly central Alaska with their fuel needs. This project, if only partially successful, will solve a difficult problem for the Air Forces. Qualified and experienced men have estimated possible oil production at 30,000 barrels a day. We are not so sanguine, but actual production has increased from 500 barrels to 3,000 barrels a day recently. This is encouraging progress. The military needs for this fuel are great and are now with us, while delivery of material is slow and seasonal. If we succeed in providing a substantial part of our fuel needs locally, we will relieve to some extent the approaching shortage of such fuel from California, Mid-Continent, and Wyoming. It is quite evident that the project, being one based on considerations of military strategy, is not one for consideration by the Requirements Committee or the Facilities Board.

Mr. FULTON. Did Mr. Patterson tell you what that considered study of the situation in the War Department had consisted of?

Mr. WHITNEY. No, sir.

Mr. FULTON. Do you know today who made those studies, and what they were, or how worthwhile or extensive they were?

Mr. WHITNEY. No, sir.

Mr. FULTON. He has never furnished that to the War Production Board?

Mr. WHITNEY. No, sir. This phase of the matter was closed by letter from the Chairman of the Facilities Board of the War Production Board, dated January 15, 1943, and the second paragraph is the pertinent one, wherein Mr. Searles states [reading from Exhibit No. 1136]:

I felt it incumbent on me to be on record with the War Production Board as to what I consider an expenditure of resources for an entirely inadequate return. Having so expressed myself and the matter being on record in the minutes of the Board, as well as in this correspondence with you and other claimant agencies, I shall initiate no further steps by way of protest, and am willing to consider the matter closed.

Mr. FULTON. Then, in effect in this case, the right to get these scarce materials and to assign priorities to get them was delegated by the War Production Board to the War Department?

Mr. LOCKE. Originally, but by this time they had most of the materials up there.

Mr. FULTON. But their right to get them was a right which originally was delegated by the War Production Board, and which now the War Department, even after articles had been published about it, refused to furnish information on to the War Production Board.

Mr. LOCKE. That is correct, sir.

The CHAIRMAN. Are there any questions?

Senator KILGORE. Isn't that one place where that material allocation plan sort of fell down?

Mr. LOCKE. It came a little too late, perhaps.

Senator KILGORE. In other words, material was allocated, they used it where they pleased, and they refused to give reasons for using it, although it took material away from other places where it was needed.

Senator FERGUSON. Mr. Whitney, you had the facilities to make an investigation, if you had been consulted, did you not?

Mr. WHITNEY. Oh, yes, sir.

Senator FERGUSON. So that there was no doubt about that. It was not on that ground that you were not consulted?

Mr. WHITNEY. No, sir.

Senator FERGUSON. As you understand it now, the ground as given is that it was military strategy and a secret?

Mr. WHITNEY. Yes, sir.

Senator FERGUSON. But your Department was consulted on many other matters that were considered military secrets, was it not?

Mr. WHITNEY. Since that time, yes.

Senator FERGUSON. And during that time you were in on the oil?

Mr. WHITNEY. Yes.

Senator FERGUSON. And furnishing the facilities for the rubber?

Mr. WHITNEY. Yes, sir; all the facilities for the high-octane program, shipbuilding, rubber, and every other program.

Senator FERGUSON. This could directly interfere with the rubber program, could it not, moving a refinery up to Whitehorse?

Mr. WHITNEY. It might, but it was very small and I don't know the details.

Senator FERGUSON. The 100-octane program, there was quite a question on that a few months ago.

Mr. WHITNEY. If they proposed to make 100-octane gasoline up there, which they originally did, that would have materially interfered, because the engineering work required on even a small job is, percentagewise, many times greater than on a big job. You have to go through all the details.

Senator FERGUSON. This matter presents real difficulties when you consider that part of it has to be done in weather 70° below, and it must be done outside.

Mr. WHITNEY. Yes, sir.

Senator KILGORE. Mr. Whitney, referring to your testimony some place, I believe that it was either admitted or conceded, or you charged the fact that the amount to be obtained from this project was very small compared to the total amount that would be necessary. The Army admitted it would be an inadequate amount to supply operations in that area, did they?

Mr. WHITNEY. No, sir.

Senator KILGORE. They did not?

Mr. WHITNEY. No, sir.

Senator KILGORE. You ascertained that from shipments?

Mr. WHITNEY. Yes, sir.

Senator KILGORE. That the major amounts going in there would have to come from outside shipments?

Mr. WHITNEY. Yes, sir.

Senator KILGORE. And the reason for building this was to obviate the necessity for these outside shipments?

Mr. WHITNEY. Yes, sir.

Senator KILGORE. Therefore, if the strategic situation progressed beyond that point, as was anticipated, there would not have been sufficient material here to defend the Alaskan Peninsula unless you could get outside shipments anyway?

Mr. WHITNEY. Correct, sir.

Senator KILGORE. In other words, it was a case of very much too little?

Mr. WHITNEY. Very much too little.

Senator KILGORE. Too little for the adequate defense and in addition it would give us something that we would have to defend or else turn over to the enemy in the event we lost it. That is right, is it?

Mr. WHITNEY. Yes, sir.

Senator KILGORE. That is all.

Mr. WHITNEY. Immediately after that I became, on the part of the chairman, very much interested in this whole project and started an investigation for him on the whole over-all scheme up in the Northwest, what was going on there, trying to determine what was sound, what was unsound, to see if we couldn't get enough data to represent the matter to the War Department and have it reconsidered by them.

In order to obtain as much data as possible on the over-all situation in the Canadian Northwest and Alaska, to do with air routes and meteorology, land transportation, which includes topography and climate, water routes, and ice conditions, petroleum production and geology, the finding of petroleum, (1) I searched the records of the Office of Strategic Services and read as much published data on the Northwest, Canada, and Alaska as I could get my hands on; (2) I contacted the Joint U. S. Meteorological Committee, the Civil Aeronautics Board; (3) I contacted several men familiar with transportation in the North country, among them Explorer Stefansson; (4) through the Planning Committee of the War Production Board I obtained what data I could from the National Resources Planning Board; (5) I contacted the Petroleum Administration for War, the Geological Survey (their Alaskan department), the Imperial Oil Co., and the Standard Oil Co. of New Jersey. I made a very complete report to Mr. Nelson on my findings, which I am giving to you on all those points.

The CHAIRMAN. Thank you very much. Is there any objection to that being made part of the record at this point?

Mr. WHITNEY. My entire report?

The CHAIRMAN. Yes.

Mr. WHITNEY. It is rather long.

The CHAIRMAN. Let's make it an exhibit for the record, if you have no objection to that.

Mr. WHITNEY. No objection, sir.

(The report referred to was marked "Exhibit No. 1137" and is included in the appendix on p. 9879. The correspondence attached was marked "Exhibits Nos. 1138 to 1140" and is included in the appendix on pp. 9884-9888. The maps attached to the report are on file with the committee.)

Senator FERGUSON. Could you state the conclusions? Would that take considerable time?

Mr. WHITNEY. No. I list the maps that I was able to secure, and one very interesting map that I will give to you, and that is the existing air routes in 1939, which I did not have at that time; then the history of the country, the fur trade routes and the history of the early airways. Richardson and the others in the early days, when McConachie came into the picture, the development of those air routes up there, which one was chosen and which one was not chosen, and the Canadian Government and the Canadian Pacific Railroad.

Then the Army chooses the McConachie route and the report goes into the various methods of transport, the existing access roads, the waterways, the Mackenzie River waterways to the north, with a road around the rapids near Fort Smith, which is used as a portage so materials can be transported north down the Mackenzie River.

I went into what was claimed as to the supply of petroleum and the difficulties of the refining of the Athabaska tar sands and their usefulness in surfacing air fields. Then I outlined what I assumed the objective was and the choice of routes, and under the "Choice of routes," under "Meteorological data," I state [reading from Exhibit No. 1137]:

From all the evidence at hand, written and verbal, the Army never consulted the Joint U. S. Meteorological Committee, aviators who have flown the northwestern routes, or any competent authorities, Canadian or American.

Senator KILGORE. Isn't it considered by competent authorities that the route, Watson Lake, Whitehorse, Fairbanks, as now flown, is about the roughest air route in the world.

Mr. WHITNEY. I have talked to several men who have flown that route, and that is their opinion.

Senator KILGORE. That there are other routes much easier to fly?

Mr. WHITNEY. Yes, sir.

Senator KILGORE. I can speak a little from one trip over. It was rough that day. My information is that it is the roughest route in the world.

One other thing: In going into this matter up there, did you consider studying the oil potentialities of the Alaskan peninsula and their accessibility to Fairbanks in the event the refinery had been placed at Fairbanks?

Mr. WHITNEY. I did, sir, and I took it up with the U. S. Geological Survey, and some of the most promising geological structure up there is in the naval reserve.

Senator KILGORE. Did you know that Secretary Ickes asked both the Army and Navy to spend a little money on development to determine that and was refused?

Mr. WHITNEY. Yes, sir. That correspondence was made available to me, sir.

Senator KILGORE. From a study of that, the refinery if it had been at Fairbanks, would have had two potential sources of oil, both the Norman wells and the naval oil reserve in the Alaskan peninsula, in the event of need; whereas with only one source of oil available, it becomes subject to the fellow who has the oil as the only one who is going to buy it because he can cut down his oil supply. If it has two sources, it can always use the reserve source as a means of bringing oil out of the developed source, by threatening to develop the reserve sources.

Mr. WHITNEY. That's right.

Senator KILGORE. Which would have given it a post-war marketable value, which it does not have now.

Mr. WHITNEY. A much more marketable value.

Senator KILGORE. It would have had a better post-war value than it will have with only one source of oil available, and that developed at great expense to the American taxpayers. Isn't that right?

Mr. WHITNEY. Yes, sir.

The CHAIRMAN. Mr. Whitney, if you can expedite this as much as possible, we are due in the Senate, and they have called us twice.

Mr. WHITNEY. I will, sir.

I outlined the Canol development, the type of crudes, the Norman wells crude. The pour point, as determined by Imperial Oil Co., is minus 40° F., but this is a paraffin base oil, and the temperature at which paraffin will begin to precipitate in that oil is, I believe, approximately minus 20° F. I am not sure if it is Fahrenheit or Centigrade, but if it is Centigrade it would be minus 12° F.

Mr. FULTON. Would the result of that be that the paraffin would be precipitated against the pipe line?

Mr. WHITNEY. It will precipitate and make transportation and pumping difficult, indeed.

Senator KILGORE. It would reduce the flow, unless you ran cleaners through it constantly to scrape the inside of the line.

Mr. WHITNEY. To my knowledge, that is the fact; yes, sir; and I say [reading from Exhibit No. 1137]:

The average of low temperatures at Fort Norman and Dawson from November to April is approximately -53° F. and the average of low temperatures in the Mackenzie Mountains is unquestionably lower. Therefore, attempting to pump Norman Wells crude, even with its abnormally low pour point, through a 4½-inch pipe line over the Mackenzie Mountains to Mayo, then to Whitehorse appears to be the height of folly, even if the pipeline and pumping stations can be built and maintained.

Then I go into the terrain and the refinery at Whitehorse and the terrific troubles. You have to have steam in the refinery, and that means water; and the troubles of operating a refinery where you have continuously low temperatures rather than periodical low temperatures, like Caspar, Wyoming, and Edmonton.

Senator KILGORE. About the pumping stations, personnel are required in all those stations—

Mr. WHITNEY (interposing). Yes, sir.

Senator KILGORE. To operate them 24 hours a day, and that personnel have to be supplied with food and water and other necessities of life, which makes necessary the maintenance constantly of an access road which will touch all pumping stations.

Mr. WHITNEY. Correct, absolutely, unless they have an air field at each pumping station.

Senator FERGUSON. Do you know whether they contemplate an air field at each pumping station?

Mr. WHITNEY. No, sir; I don't think so.

I go into the operations in the Norman wells area, a summary, and then the sources from which all my data are obtained, conclusions, and recommendations [reading from Exhibit No. 1137]:

Although in my considered opinion the Army has used bad judgment in the choice of routes for both the highway and the string of air fields to Alaska, in the face of practically unanimous advice to the contrary from the most qualified experts, and therefore has wasted vast amounts of transportation, scarce equipment, critical materials, and manhours, the War Production Board is in a difficult position to take corrective action because of the predominantly military character of these projects. I question the propriety of our intervening as the War Production Board in the military aspects of this situation, but I do think it is both our right and our duty to insist that the present wastage of scarce materials and equipment be immediately stopped. I therefore recommend that the Chairman of War Production Board take prompt and appropriate steps toward this end.

As for oil developments in the northwest portion of this continent, however, I am of the opinion that these are very much within the responsibilities of the civilian agencies of the Government, particularly the Petroleum Administration for War and the War Production Board, and should be kept definitely outside of the jurisdiction of the military.

The Canol project has so far been exclusively handled by the Army and in a most unsound way from every point of view, as outlined in detail in the body of this report. I have been informed that the Army is also now intervening in the McMurray-Athabaska situation. At the same time there is an urgent need for all oil developments in the northwest (including both Canada and Alaska) to be fully coordinated with each other as well as with the strategic plans of the Chiefs of Staff.

Therefore, I recommend that the Chairman of the War Production Board present this problem at once to the Petroleum Administrator, with a view to having the latter take the lead in arranging promptly for a fully integrated program of petroleum development in that whole area. The Petroleum Administrator should collaborate closely with the Canadian authorities, the Chiefs of Staff, and the War Production Board, but the actual carrying out of the program should be under the full control and authority of Petroleum Administration for War subject to such general strategic and War Production Board directives as may be appropriate.

Just as I finished this report and gave it to Mr. Nelson, the Bureau of the Budget came into the situation, said they were making a study of it, asked for what records we had, and our report was handed to them and we were asked not to take any action until they had completed their study of the matter. Now, your good committee, sir, has taken the matter in hand and is conversant with developments since that time.

The CHAIRMAN. The committee will recess until tomorrow morning at 10 o'clock, when we will hear the Army experts of General Somervell on how they made the study and came to the conclusions that they did in this matter.

(Whereupon, at 12:59 p. m., the committee recessed until 10 a. m., the following day.)

INVESTIGATION OF NATIONAL DEFENSE PROGRAM

TUESDAY, NOVEMBER 23, 1943

UNITED STATES SENATE, SPECIAL COMMITTEE
INVESTIGATING THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

The committee met at 10:05 a. m., pursuant to adjournment on Monday, November 22, 1943, in room 318, Senate Office Building, Washington, D. C., Senator Harry S. Truman, presiding.

Present: Senators Harry S. Truman, chairman; Harley M. Kilgore, Homer Ferguson, Tom Connally, James M. Mead, Ralph O. Brewster, Joseph H. Hall, and Carl Hatch.

Also present: Representative Leon H. Gavin, Pennsylvania; Anthony J. Dimond, Alaska; Hugh A. Fulton, chief counsel; Rudolph Halley, executive assistant to chief counsel; H. J. Robinson, investigator.

The CHAIRMAN. The committee will come to order. Mr. Graham, you have been sworn by the subcommittee, haven't you?

Mr. GRAHAM. Yes.

TESTIMONY OF JAMES H. GRAHAM, SPECIAL ASSISTANT TO THE UNDER SECRETARY OF WAR

PLANNING OF THE PROJECT

Mr. FULTON. Mr. Graham, would you tell the committee your full name and your official position with the War Department?

Mr. GRAHAM. James H. Graham, special assistant to the Under Secretary of War on matters of transportation and transport.

Mr. FULTON. In the spring of 1941, did you receive any instructions from Gen. Brehon Somervell with respect to a Canadian project?

Mr. GRAHAM. Not in '41, no.

Mr. FULTON. When did you receive it? I meant the spring of '42.

Mr. GRAHAM. The spring of '42. I received my first instructions in regard, not to the so-called Canol project, but shortly after Christmas of '41, just after Pearl Harbor, I was with General Somervell, then as adviser, as counsel, had been with him for several months since the previous April. I had known him in France in the last war, and that is the reason I came up to Washington.

Mr. FULTON. When you say that you were a special assistant to the Under Secretary of War, you mean that that was the title because you bore a civilian capacity?

Mr. GRAHAM. No, I mean since I served under General Somervell as counsel from April 15, 1941, to March 15, 1943, on a dollar-a-year basis. I received the full sum of 72 cents in that time.

Incidentally, I paid my own expenses, travel and all, during that period, 1 year and 11 months, and March 15 of 1943, that is, last March, the Under Secretary asked me to be his adviser and a member of his staff on matters of transportation and transport. I told him to write his own ticket, do it any way he wanted to, dollar-a-year or otherwise. He insisted that I go on civil service, and I told him to write his own ticket. I accepted that, and since that time I have been on his staff. That was March 15, 1943.

Mr. FULTON. But during the time of the Canol project and your activities with respect to that, your title was what?

Mr. GRAHAM. Just simply counsel or adviser to General Somervell.

Mr. FULTON. When you say "counsel," do you mean attorney?

Mr. GRAHAM. No. I mean just adviser on anything he might assign to me.

Mr. FULTON. So that you were a dollar-a-year adviser to General Somervell personally?

Mr. GRAHAM. Yes.

Mr. FULTON. Where were your offices?

Mr. GRAHAM. My room at the time of the study on the Canol project was immediately outside his door.

Mr. FULTON. Did you in that room have a desk?

Mr. GRAHAM. There were two desks; General Robinson occupied one; I occupied the other; also General Somervell's two secretaries sat there.

Mr. FULTON. Did General Somervell officially consult you in the latter part of 1941 with respect to a Canadian project?

Mr. GRAHAM. I couldn't say that General Somervell has ever consulted me officially. Our relations are very close because of the last war. He served under me for a while. I was 3 years in France during the last war. For a short period he served under me in construction. Later I met him and contacted him a good deal when I was a member of the United States Liquidation Commission, War Department. Therefore, our relations are rather informal.

During the period of this study of Alaska and the Canadian subject, extending over 3 months, there was hardly a night went by that I didn't drop into his room—he was working until 7, 8, 9 o'clock. Generally about 8 o'clock I would drop in, chat with him about the events of the day, and then tell him to go home and get something to eat. That was during the 4 months immediately after Pearl Harbor.

Mr. FULTON. So that you habitually kept him——

Mr. GRAHAM (interposing). I couldn't under oath say that I ever discussed the Canol project in detail with him, except to keep him advised from time to time as to what we were doing. The Canol project, in my mind, all through that period, was merely a part of a larger group which came out of the Alaskan Highway. It started—if you would care for me to, I will tell you the whole story——

Mr. FULTON. Before that, will you tell us what your civilian occupation had been immediately before you became a dollar-a-year adviser to General Somervell?

Mr. GRAHAM. Dean of the college of engineering, University of Kentucky, since 1935. Before that I was in finance and industrial operations. Before that I was in the war for 3 years. Before that I was in construction work of all kinds, dating back to 1900.

Mr. FULTON. During the period from 1935 on, you were dean of that college of engineering?

Mr. GRAHAM. Yes.

Mr. FULTON. Did you have any civilian activities other than that?

Mr. GRAHAM. No, except that I was adviser on all construction.

Mr. FULTON. To General Somervell?

Mr. GRAHAM. To the Governor, now Senator Chandler, and also to the present Governor, Keen Johnson. That was an unpaid job. I looked upon it as part of the job of a dean of a college of a State university.

Mr. FULTON. Did you retain your position as dean during the time that you were adviser to General Somervell?

Mr. GRAHAM. Yes. I didn't stay here all the time. I went back and forth. During the period after Pearl Harbor, I averaged 3 weeks out of a month here, 1 week down there. Since then, I have taken a leave of absence from the university, because I am on Government pay roll. I didn't ask for that, but the Under Secretary insisted upon it.

Mr. FULTON. Now will you tell us in your own words the instructions which General Somervell gave you in December of '41 as a result of which you ultimately became interested in this oil project in Canada?

Mr. GRAHAM. I can't say that I ever was particularly interested in this oil project. I was finishing a job.

I don't know just who ordered the construction of the highway connecting the then existing and now existing airfields across Canada.

Mr. FULTON. Dean, you understand, do you not, that an order to construct the highway would be a directive that would be issued after the decision had been made?

Mr. GRAHAM. That decision had been made just after Pearl Harbor, but by whom, I do not know.

Mr. FULTON. You mean a decision had been made to form some sort of a transportation link?

Mr. GRAHAM. The Chief Engineer received a letter. I have never seen it. I don't think General Somervell had seen it. He had been Assistant Chief of Staff since November 28, 1941. That was just several days before Pearl Harbor. Pearl Harbor came unexpectedly. Therefore, this letter was shortly after Christmas, as I remember. General Sturdevant and the Chief Engineer came into General Somervell's office.

Mr. FULTON. Just proceed in your own words to tell us about this project, getting to the Canol project as soon as possible.

Mr. GRAHAM. In my mind, there are really four things tied together.

Mr. FULTON. And in your mind the Canol project was a mere adjunct to the highway project?

Mr. GRAHAM. It grew out of it. The question was, Frederic A. Delano had written a letter to the Chief Engineer offering, in lieu of a highway starting in the neighborhood of Edmonton and going to Whitehorse—

Mr. FULTON. (interposing). Who is Mr. Delano?

Mr. GRAHAM. Frederic A. Delano was at that time Chairman of the National Resources Planning Board. That letter was brought to General Somervell as Assistant Chief of Staff, G-4. Whenever Somervell thinks of a railroad or has a railroad thing put before him, or a Frederic A. Delano question comes up, he immediately thinks of me, so I went into his office.

Senator FERGUSON. Dean Graham, who gave the problem of the railroad to Delano?

Mr. GRAHAM. I don't know. He came up himself, I suppose.

Senator FERGUSON. He just conceived that in his work as a planner?

Mr. GRAHAM. Yes, I imagine so. He is an old railroad man, had been president of railroads before the last war. Anyhow, he brought this question in. General Somervell told me to investigate. That led into a long series of conferences in Delano's offices and elsewhere. He wanted to build a railroad from Prince George through the Rocky Mountain trench to Fairbanks. I heard a great deal of evidence on that. The Rocky Mountain trench, from all the evidence I gained at that time, was almost a locating engineer's ideal. There is nothing like it in the United States for a railroad. It runs from Prince George for 1,200 miles straight through a trench, 7 miles to 15 miles in width, the Cascade Range on the left, the Mackenzie Range on the right. It is a beautiful section for a railroad or a highway. The terrain is good, nothing but sand, gravel, and glacial schists, none of this moss and other things—well timbered, no doubt very highly mineralized; so reported.

Mr. FULTON. Now Dean Graham, these conferences related to this question of whether you would build a railroad up the Rocky Mountain trench, and in no way related—

Mr. GRAHAM (interposing). In lieu of the highway from Edmonton through the same way, that was offered. That was under study.

Mr. FULTON. And these conferences in no way related to the present Canol project or any similar project?

Mr. GRAHAM. No; Canol had not yet commenced to appear during these conferences. Various people would think of oil. I first met Mr. Stefansson in Colonel Delano's office. He brought him in to give first the information on Alaska and western Canada, but also information as to the water route from McMurray Waterways, because with the question opened up as to whether you are going to build a railroad, or a highway, or what not, you had to investigate the whole thing.

From time to time Norman wells was mentioned as the only oil in that region that had been developed—nothing definite; no technical, particular information. This was during January and February of 1942.

Mr. FULTON. What was the purpose of mentioning Norman wells?

Mr. GRAHAM. It always came up.

Mr. FULTON. Why?

Mr. GRAHAM. You sit around a table with 10 or 15 men, engineers and so forth, drawn from up in that region, and they talk the area, they branch off on a good many things.

Mr. FULTON. What did Norman wells have to do with this railroad project?

Mr. GRAHAM. Nothing. With the railroad project, not a thing at that time.

Mr. FULTON. Who brought up Norman wells, and for what reason?

Mr. GRAHAM. Mr. Stefansson was the first one, as I remember it, that I ever heard mention it. I think he held it up as an argument for our whole route through to Alaska, to be on the waterways, or what we called D route, which starts out by Great Slave Lake and down the Mackenzie River.

Senator KILGORE. Did he suggest Great Slave Lake or another route?

Mr. GRAHAM. Sir?

Senator KILGORE. In that conversation, did Stefansson suggest Great Slave Lake, or did he suggest a different water route because of the dangers of navigation in Great Slave Lake?

Mr. GRAHAM. I don't remember, sir. It was always understood, and it was marked on the map at the time, that the route that Stefansson argued for started at McMurray Waterways, went through and over the Great Slave Lake, and then down the Mackenzie. The only objection to it from anybody's point of view at that time was that it had a 14-mile portage, which is there now.

Mr. FULTON. That particular route that Mr. Stefansson was referring to would be a water route except for the portage, would it not?

Mr. GRAHAM. It would be all the way through.

Mr. FULTON. And it would not be either the Edmonton-Fairbanks highway or the railroad project which you have referred to?

Mr. GRAHAM. No. We investigated during that period four routes, A, B, C, and D. B was the Rocky Mountain trench route. The reason that was abandoned—and I hated to, I admit that is one thing I did hate to abandon, the all-railroad route, because it is so perfect—was because it has fog.

Senator FERGUSON. Dean, there are a lot of places that are perfect places to build a railroad. The question is, do you need one there?

Mr. GRAHAM. I check with you, Senator, 100 percent, and I turned it down, not because I wanted to. It is almost a natural, practically a natural, for a railroad or a highway.

The CHAIRMAN. Why didn't they build a highway, if it is a perfect place for a highway, instead of where they did build it?

Mr. GRAHAM. I check with you; it is a 100 percent perfect place for a highway. The only thing is, Senator, it has fog. We referred that matter, took it up with General Streett, who at that time represented the air arm on the war plans. I took it up with him. He was drawn into these conferences from then on. He brought aviators or the men, the air officers, who were running the ferry system from Edmonton through to Fairbanks and the rest of Canada. Their evidence was that the C route out of Edmonton was the best air route. At the same time, war plans said they were not interested in Fairbanks as a mass center for a great many ground troops, that they proposed to defend Alaska by air, and they were only interested in an air route.

That was the reason that they advocated the highway along route C. That is the reason they advocated any highway, to connect those airways starting at Fort St. John, Fort Nelson, the other one I

forget, the next one was Whitehorse, and then to Fairbanks. They were ferrying at that time planes, pursuit planes, to Alaska. They were losing some, because their fields were about 400 miles apart. If an aviator came down in the winter, you couldn't get to him and he couldn't get out.

Mr. FULTON. Dean, let's summarize where we have reached at this time. You have four routes which you have designated A, B, C, and D. Now, D route in this waterways route that Mr. Stefansson, the famous explorer, referred to, and that route goes right past Norman Wells, doesn't it?

Mr. GRAHAM. It goes right past Norman Wells.

Mr. FULTON. Now, Mr. Stefansson's interest in Norman Wells was for the purpose of supplying gasoline and motor oil products for use on that water route, if you adopted the water route?

Mr. GRAHAM. Check.

Mr. FULTON. But you felt that route was not as good as the Edmonton-Fairbanks route for the purposes intended?

Mr. GRAHAM. I didn't select the route, either one of them. The necessity for air traffic, ferrying across, selected the route.

Mr. FULTON. All right, that route that was selected, you called C route.

Mr. GRAHAM. C route.

Mr. FULTON. Now the D route of Stefansson, are you aware that as an adjunct to this Canol project, which itself was a mere adjunct to this highway project, which was for the purpose of connecting these airfields—are you aware that in connection with this Canol project they spent \$21,000,000 developing the Stefansson D route?

Mr. GRAHAM. After I gave my recommendation, finished my job in the last of April, I don't know one thing about it.

Mr. FULTON. Dean, when you recommended the Canol project on April 29, did you have in mind that as an adjunct to that project, we might be spending \$21,000,000 to develop this D route of Mr. Stefansson's?

Mr. GRAHAM. No, I was looking for—incidentally, in the A. E. F., and over at the War Department now, I know something about lines of communication, and C route was selected as a line of communication for ferrying, supported by a highway so that you could get between—in other words, it was a string of a lot of beads which were the airfields—that was the only reason. I condemned the railroad, also any highway on route B, for the simple reason that war plans said, "We are not interested in a railroad."

Mr. FULTON. As I understand it, the railroad and the highway in this route B, although better located for a railway and a highway, was condemned, as you term it, because it was not a good air route.

Mr. GRAHAM. That is the only reason, sir.

Mr. FULTON. There was a good air route to the west of that called A route?

Mr. GRAHAM. The A route was considered. We called in the vice president of Pan American. He came from Seattle especially and he sat with us and we asked him, "Can you fly?" He said, "Yes." He told us he gave nearly 90 percent flying time from Seattle up through to Fairbanks. He gave evidence of that, but he also said it was so foggy that in a pursuit plane—fighter-type planes, where you have no navigation and all that—they would not fly the trench. He admitted

that freely. He also said in case of a bad fog they went from Prince George, which is their last take-off before—they either went A or B whichever their passengers wanted—but sometimes in bad cases of fog they went around by Edmonton and followed the other route. They had rights on that road in peacetime.

Mr. FULTON. Now, with that explanation, we arrive at the point where the Army preferred the C route, which was the Edmonton to Fairbanks route.

Mr. GRAHAM. Yes.

Mr. FULTON. Now along that route, there were already existing a number of airfields, the names of which you have referred to. Those airfields had been built without a highway, had they not?

Mr. GRAHAM. Yes. They got the stuff in there in the winter, during the snow, and they stuck to what they could. I know nothing about that,

Mr. FULTON. If you could build these airfields without a highway, and carry in the construction equipment with which to build them, why did you need the Alcan Highway?

Mr. GRAHAM. I had nothing to do with the Alcan Highway. It was ordered to be built. That was not particularly questioned. The question was whether to build the Alcan Highway as it is built now or over a route in the Rocky Mountain trench.

Mr. FULTON. But it was decided that you would build it from Edmonton to Fairbanks so as to service these existing airfields and some additional rights to be constructed?

Mr. GRAHAM. They stated they were only interested in getting a highway to connect airfields.

Mr. FULTON. And not to transport material to support ground troop actions?

Mr. GRAHAM. I reported the highway could not take care of much more—that is, and service itself, the Medical Corps and the people all along, the airfields, the troops.

Senator FERGUSON. If that is true, Dean, why did they widen the road from 16 feet, a military road, to 26 feet?

Mr. GRAHAM. I do not know. I did not even know it had been done, Senator, and there is no use asking me questions on this matter subsequent to April 1942 because I did not touch it. All I know is hearsay.

Mr. FULTON. This Canol project, Dean, as it is now known, was conceived of as an adjunct to this Edmonton-Fairbanks Highway, was it not?

Mr. GRAHAM. We had heard about it; there was no technical information. We knew they had oil up there. During the period that I was investigating the railroad, I also investigated the coal facilities at both ends to supply locomotives if the railroad was approved. I also investigated the two small oil fields near Edmonton. That turned out not to be good oil for gasoline.

Mr. FULTON. But to cover ground, Dean, as I understand you in your private testimony to the committee, the Canol project was conceived of for the purpose of supplying gasoline and motor fuel for this Edmonton-Fairbanks Highway.

Mr. GRAHAM. Yes, sir.

Mr. FULTON. And therefore as simply an adjunct to this highway which is itself an adjunct to the airfields that it connects.

Mr. GRAHAM. No. When I wound up—and the railroad was dead by lack of military necessity—along about the middle of March, we had heard a good deal about fuel and crude oil, especially at Norman wells, so the same group—myself, General Carter, General Pyron, General Streett—decided we would find out something about them. For that reason—we knew it belonged to the Imperial Oil Co. of Canada—

Mr. FULTON (interposing). Now, let's see, Dean. At that stage how much would you know about Norman wells other than what Mr. Stefansson and others told you, that there was a petroleum project?

Mr. GRAHAM. I knew there was a small refinery there; a small amount of crude production, which was operated in the summer for the putt-putt boats on the Mackenzie River, and that belonged to the Imperial Oil Co. of Canada. To finish up the job, and to give all the information on all that area, we decided we would find out some technical information about it. We had investigated Edmonton. We had investigated; we had investigated coal; so we started in. I did not know anybody in the Standard of New Jersey. General Carter communicated with them to ask them to send technical men, who are familiar with the Norman field. They complied with that. We had a meeting with them.

Mr. FULTON. On April 29?

Mr. GRAHAM. About then. I do not know whether it was the 27, 28, or 29.

Mr. FULTON. Of 1941?

Mr. GRAHAM. 1942.

Mr. FULTON. '42?

Mr. GRAHAM. Yes. At that time we were rather stretched. During that period we had lost over 1,000,000 tons of tankers. I have been asked the question, "Did you consider tankers for oil up there?" That was an obvious question. Of course, we considered tankers and I recommended that we use a barge line up through the inner passage.

Mr. FULTON. When you say you considered tankers, what tanker experts had you consulted?

Mr. GRAHAM. None.

Mr. FULTON. You had this one conference, and Imperial Oil representatives appeared at that conference. What did they tell you?

Mr. GRAHAM. They told us first that they had 400 barrels of production.

Mr. FULTON. Four hundred barrels per day?

Mr. GRAHAM. Yes; that the gravity was 40 to 42; that they had pumped it at 55 below zero.

Mr. FULTON. Pumped it where?

Mr. GRAHAM. In their own outfit around through their gathering lines and otherwise.

Mr. FULTON. How far?

Mr. GRAHAM. I do not know.

Mr. FULTON. Over any bridges or viaducts?

Mr. GRAHAM. No; I do not know. That was their statement.

Mr. FULTON. Did you ask them the details?

Mr. GRAHAM. You will have to ask General Pyron. That is a technical matter on oil.

Mr. FULTON. But Dean Graham, did you ask them those questions?

Mr. GRAHAM. No.

Mr. FULTON. Did General Pyron?

Mr. GRAHAM. I do not know. We were there for 3 solid hours. I cannot remember 18 months later everything that went on in a discussion of 3 hours.

Mr. FULTON. It was almost immediately after that conference that you wrote a one page memorandum recommending the Canol project; was it not?

Mr. GRAHAM. The next day I did, yes, and sent copies to all the other men that were there; gave it to General Somervell.

Mr. FULTON. It was the same day, was it not?

Mr. GRAHAM. No. I do not think it was the same day. I may have written it that afternoon or late at night. I cannot remember.

Mr. FULTON. But, Dean, with respect to that memorandum, did you write any memorandum of what was said at that conference, the only conference held on this subject?

Mr. GRAHAM. No.

Mr. FULTON. Did anybody, so far as you know, on behalf of the Army write so much as a line in any memorandum about that conference?

Mr. GRAHAM. No; I do not know. We did not keep a secretary. Those were strenuous times. We were working fast. This was not the only job I had.

Mr. FULTON. As I understand it, this was only an adjunct to another job which was a part-time job of yours.

Mr. GRAHAM. I made a recommendation. If I had to write that recommendation today, with all the facts that the war has moved westward, I would change only 6 words.

Mr. FULTON. What are those six words?

Mr. GRAHAM. I would give the chief engineer the right to select either Whitehorse or Fort St. John for the place of the refinery.

Mr. AMBERG. Do you mean Fort St. John or Fairbanks?

Mr. GRAHAM. Fort St. John, south of Whitehorse.

Senator FERGUSON. That is right on the boundary of British Columbia, is it not?

Mr. GRAHAM. Yes, sir. In retrospect now, I did not think of it at that time. It was all new to me, this running a 4-inch line along highways behind armies for four or five hundred miles, for water and gasoline both. That is a new development. They are doing it in north Africa and Italy. I did not know you could chase along behind anything and stick a 4-inch line almost anywhere. I knew that, in all the oil fields, 2-, 3-, 4-inch pipe lines are considered gathering lines.

Mr. FULTON. To take these things one by one, you say you would now recommend that they could place the refinery at Whitehorse or at some point which would be within American jurisdiction, such as Fairbanks?

Mr. GRAHAM. I did not say Fairbanks. because Fairbanks—well, I might say Fairbanks now because that is in our jurisdiction, but the War Plans said they were not interested in Fairbanks as a center.

Mr. FULTON. But what I am talking about is that today, or at least last week when you were before the committee privately, you took the position that you would now, at least, allow for the possibility of placing the refinery on American soil?

Mr. GRAHAM. If the chief engineer had come back and said, "We believe it should be put in Fairbanks," and General Somervell had referred to me, I would have said, "Sure; go ahead."

Mr. FULTON. Well, Dean, what I am asking now is, if you had to write this one page memorandum¹ over again, would you not at least allow for the possibility of that refinery being placed on American soil?

Mr. GRAHAM. I would place it, because the amount of oil that we were promised, or rather that they said we might get at Norman wells 3,000 barrels a day. They were very conservative in their statements, so the 3,000 barrels a day was what I predicated my memorandum upon. Since that time the field has developed so much oil that it is becoming embarrassing, so it is again a question of what you are going to do with it after the war, and as I say, in retrospect, with the war somewhere near an end by 18 months, I would get that much nearer the United States by coming south. That is in retrospect.

Mr. FULTON. Dean, did you have in mind when you recommended a refinery at Whitehorse that we might spend twenty or thirty million dollars building a refinery there?

Mr. GRAHAM. No.

Mr. FULTON. Now, did you for one minute consider the possibility of building that refinery in American territory where it could be retained by the American Government as a permanent asset for whatever value it might have?

Mr. GRAHAM. The only other point that I considered at all was Fairbanks, and I chose Whitehorse. It was in the center of the line of communications.

Senator KILGORE. Had anyone, on behalf of the War Department or any other agency of the Government, made even an aerial survey of the proposed routes of that plant up to the time the directive was issued?

Mr. GRAHAM. The only thing they had at the time—and only partially at that—was aerial surveys made by the Canadian Government and furnished us upon which the first projection of the present Alcan Highway was made.

Senator KILGORE. But I am talking about the route of the pipe line.

Mr. GRAHAM. Well, that crosses—comes over to it.

Senator KILGORE. You know there are large white spots on those maps up there which have never been surveyed.

Mr. GRAHAM. That is true.

Senator KILGORE. So you cannot go by maps.

Mr. GRAHAM. I simply stated by the most feasible route.

Mr. FULTON. Now, Dean Graham, with respect to this refinery, who said what about where it was located or to be located? How did you determine that it was to be located at Whitehorse?

Mr. GRAHAM. By the line of communications.

Mr. FULTON. No; the refinery.

Mr. GRAHAM. I am talking about that; in the center of the line of communication.

Mr. FULTON. In other words, you took the geographical center between Edmonton and Fairbanks?

¹ See Exhibit No. 1095, appendix, p. 9842.

Mr. GRAHAM. And the fact that there was an airfield there and rail communication to water.

Senator FERGUSON. Did you consider that Nome and the point half-way between Fairbanks and Nome, Ruby, was not in the center of the air route?

Mr. GRAHAM. I would consider the line of communication at Nome, but we did not know anything about Nome at that time.

Senator FERGUSON. Did we not have an airport at Nome and Ruby and down at Bethel?

Mr. GRAHAM. That was not considered at the time.

Senator FERGUSON. Did you ever consider getting a road to our own airports and not only to the Canadian airports?

Mr. GRAHAM. No.

Senator FERGUSON. You did not consider that?

Mr. GRAHAM. That was not presented to us.

Mr. FULTON. Why did you accept the geographical center of the route to locate it, irrespective of the fact that it might mean that a \$20,000,000 refinery was located on foreign soil?

Mr. GRAHAM. Merely because of the line of communication between the United States and Fairbanks.

Mr. FULTON. You cannot recall any discussions by these gentlemen or by yourself of the detailed facts as to what that geographical center meant in importance, can you?

Mr. GRAHAM. No.

Mr. FULTON. Did you make any estimates of gallons and barrels of oil and figure out how much trouble it would be to shift it, if you had your refinery a little off center?

Mr. GRAHAM. I did not consider that, because at that time I figured only on tank trucks. I did not know at that time, and it had not been developed at that time, of running pipe lines along the road. That has been done since, and that was not in the original thing, as I conceived it or recommended it.

Mr. FULTON. With respect to that refinery itself, how much discussion was there as to how much that refinery would cost?

Mr. GRAHAM. I do not think there was any discussion, sir.

Mr. FULTON. How much discussion—

Mr. GRAHAM (interposing). I recommended that they secure a used refinery, obsolete from the point of size, but still in good condition. I knew that there was bound to be such on the west coast. I think that when the engineer began to investigate he found 13.

Mr. FULTON. Dean Graham, you say on the west coast. Do you know where this refinery was actually taken from?

Mr. GRAHAM. I understand, only by second or third information, it was taken from somewhere in west Texas.

Mr. FULTON. In other words, you were thinking of taking an obsolete refinery from—

Mr. GRAHAM (interposing). From the point of size.

Mr. FULTON. From California, and actually what they took was a refinery from west Texas.

Mr. GRAHAM. All right.

Mr. FULTON. Are you aware as to the opinion of the Administrator of Oil on the value of that refinery that they took from west Texas for use in the United States?

Mr. GRAHAM. Again, I have heard that he valued it very highly—I don't know. I have never talked to the Administrator for Oil, but I understand he valued it highly. You had better ask General Pyron that. He is our oil man.

Mr. FULTON. At least, you did not ask the Administrator for Oil what refinery was available and what damage, if any, that would do to the American program for obtaining oil in the United States for military and civilian purposes?

Mr. GRAHAM. No; I did not.

Mr. FULTON. Did you or anyone consider how much shipping would be required to dismantle that refinery in west Texas or California, or wherever you proposed to take it, and transport it to Whitehorse?

Mr. GRAHAM. No.

Mr. FULTON. Did you have any estimate of any kind on that?

Mr. GRAHAM. The only thing that I had was one I made years and years ago. It is not such an awful job.

Mr. FULTON. How much shipping would be involved and how much expense?

Mr. GRAHAM. It depends on who is going to do it and how it is to be done and what you are going to take. I cannot tell you.

Mr. FULTON. That subject was not discussed in this conference, was it?

Mr. GRAHAM. No.

Mr. FULTON. With respect to the wells and sands, you were told by the Imperial Oil Co. that they thought they might be able to increase the production to 3,000 barrels per day, were you not?

Mr. GRAHAM. They were fairly sure of that.

Mr. FULTON. Did they express any doubt of it?

Mr. GRAHAM. Not that I remember.

Mr. FULTON. Did you ever see a letter written by the Imperial Oil Co. dated May 2?

Mr. GRAHAM. That was sent, according to the record, to me by General Carter. It was addressed to him, I think. I read the letter; yes.

Mr. FULTON. Did you read it on or shortly after the 2d of May—3 days after?

Mr. GRAHAM. It probably got to my office about the 6th of May. I do not know.

Mr. FULTON. Did you read it?

Mr. GRAHAM. Yes. In the former session I did not remember it; since then it has been brought to my attention. Yes; I read it.

Mr. FULTON. Do you recall, Dean Graham, that that letter said [reading from Exhibit No. 1101]:

In the so-called Norman pool, five wells have up to this time been drilled. four more or less together and one about 3 miles distant from said group. Of these five wells, only three can be called producers. Two of the producers are only 150 feet apart, and the third is less than one-quarter of a mile distant from these two producers.

Mr. GRAHAM. I do not remember the details; 18 months have gone by now.

Mr. FULTON. At that point it is apparent that the only wells they had were within a distance of one-quarter of a mile from each other, and that if you were to drill in adjacent territory, you probably would receive oil, but you would not necessarily receive it, because only this quarter of a mile had been proved.

Mr. GRAHAM. I will have to refer you to General Pyron. Most of the discussions and conversations were conducted by him. He studied their geological sections and what they had found, and they agreed with him as to the possibility of finding 3,000 barrels a day, and upon that 3,000 barrels I predicated the size of the pipe line and the size of the refinery and made my recommendation.

Mr. FULTON. Did you note that they further said, with respect to their oil reserves—that is, the representatives of the Imperial Oil Co.—as follows [reading further from Exhibit No. 1101]:

As our representatives pointed out, the possible drilling program which they outlined was based on a more or less hazardous assumption that locations with reasonable prospects of success could be found for 45 wells, but we should emphasize the fact that we have no knowledge of the extent of this pool and no assurance whatsoever that productive locations for this number of wells could be found. The foregoing uncertainties suggest the advisability that any program of drilling in the Norman field should be supplemented by exploratory drillings on other prospects in the Norman area known from preliminary geological work already done.

Do you recall reading that?

Mr. GRAHAM. No; not in detail. I looked upon the letter then, and I look upon the letter now, as Standard's way of setting up an alibi in case the thing was a failure.

Mr. FULTON. In any event you were warned, both orally and in writing, that as far as they were concerned they did not guarantee that you would receive any additional oil.

Mr. GRAHAM. By an official of the company, whose name I do not remember, but he did not want his own company tangled up in case we couldn't reach 3,000 barrels a day. I am very glad he wrote that letter, because it disclaims any pressure upon us to go ahead and do that. We did it of our own free will and accord, and against their advice, you may say.

Mr. FULTON. Against the advice of the only persons who had knowledge of the fields.

Mr. GRAHAM. No. This letter was not written, as I remember it, by the technical people that came before us.

Mr. FULTON. The letter is signed R. V. LeSueur. Did you have any idea then, or do you now, that this letter did not represent the considered opinion of the Imperial Oil of Canada?

Mr. GRAHAM. If I had been connected with the Imperial Oil of Canada, as a businessman in official capacity, I would have written the same letter.

Mr. FULTON. Dean Graham, did they not give you the same advice orally?

Mr. GRAHAM. You will have to discuss that with General Pyron.

Mr. FULTON. We have. Don't you have a recollection that they expressed at least the—

Mr. GRAHAM (interposing). My recollection is they were very conservative and cautious, but they admitted that you could get 3,000 barrels a day by additional drilling.

Mr. FULTON. This letter goes on to tell you something about the oil, saying [reading from Exhibit No. 1101]:

Distillate data with regard to Norman crude has already been furnished by us and no doubt has been thoroughly studied by your staff.

Had it been studied by the staff of the War Department?

Mr. GRAHAM. From a technical side, whether they furnished the analysis of the oil, you will have to ask General Pyron. I do not remember that it was done.

Mr. FULTON. As far as you knew, when you made this one page recommendation of the Canol project, you knew of no study of that distillate data by the War Department?

Mr. GRAHAM. Except that it was 42 gravity oil.

Mr. FULTON. You know of no detailed study of this material they had furnished?

Mr. GRAHAM. No.

Mr. FULTON. It continues [reading from Exhibit No. 1101]:

We should, however, point out that our refinery at Norman is of the low pressure distillation type, and with this equipment only 17 percent of each barrel of crude can be converted into aviation base stock and that it requires 40 percent of this base stock and 60 percent of hydrocodimer as well as 4 cubic centimeters of lead to produce 100-octane aviation gasoline.

What did that mean to you?

Mr. GRAHAM. I did not hear it. As far as reading it is concerned, I again state that I looked upon the letter as a written and filed alibi in case of failure.

Mr. FULTON. Did not that indicate to you that the company was telling you that they could not produce 100-octane aviation gasoline out of that Norman wells oil?

Mr. GRAHAM. As far as I was concerned at that time I was not thinking about 100-octane gasoline. The fact of the matter is the only gasoline octane up to then was 85. You remember that 100 octane is rather modern.

Mr. FULTON. Do you mean, Dean, that you were going into this project with the idea that it would not produce aviation gasoline of the quality that our combat planes were to use?

Mr. GRAHAM. I was never thinking particularly—I was thinking about motor traffic—you have a highway and you have motor traffic on it. You have got to take care of all the servicing of those fields. That takes a certain amount of motor oil which is not 100 octane.

Mr. FULTON. So you were not interested in the fact that the quality of this gasoline could not be brought up to 100 octane without either very extensive refinery practices or the importation of component parts from the United States?

Mr. GRAHAM. I was thinking about motor oil.

Mr. FULTON. Have you ever been shown the report of the Quartermaster General with respect to the quality of this gasoline to be used for aviation purposes?

Mr. GRAHAM. No. When I put in that April 28 memorandum, I have had nothing to do with the project since.

Mr. FULTON. Would you regard it, when you say today you would change only six words, as important to look at the report of September 20, 1943, of the Office of the Quartermaster General, Fuel and Lubricants Division, on the Canol project?

Mr. GRAHAM. The only thing I'd say is that you have so much more oil now than you had at that time.

Mr. FULTON. We will take that up as we come to it. With respect to the quality of the gasoline, the Quartermaster General reports, "The quality of the gas produced does not fit Air Force needs very well."

Mr. GRAHAM. No; I did not know that.

Mr. FULTON. You did not ask at that time, and you did not examine these data in this letter with respect to what kind of gasoline you would get from that fuel?

Mr. GRAHAM. I did not. I left that to General Pyron who may be able to tell you about it. I do not know.

Mr. FULTON. You selected Whitehorse as the point for the refinery, and since Norman Wells was the point where the oil was produced, that automatically required you to locate your pipe line between Whitehorse and Norman Wells, did it not?

Mr. GRAHAM. You could have gone around and made a survey by the most feasible route.

Mr. FULTON. You mean you could make certain alternative routes between those two points, but your pipe line had to go from Whitehorse to Norman Wells.

Mr. GRAHAM. Yes.

Mr. FULTON. Did you at that time examine into the mountainous terrain that exists on that route?

Mr. GRAHAM. No. We knew it was there.

Mr. FULTON. Did you know you would have to go over the mountains and rivers?

Mr. GRAHAM. We knew, sure; it's rough country. We knew that.

Mr. FULTON. How many miles did you think that pipe line was going to be?

Mr. GRAHAM. About five or six hundred.

Mr. FULTON. How many did it turn out that it actually was?

Mr. GRAHAM. I do not know.

Mr. FULTON. Are you aware it was longer than you contemplated?

Mr. GRAHAM. No; I do not know. I have not had anything to do with the thing since.

Mr. FULTON. How much did you estimate it would cost in terms of materials and manpower to put that pipe line over this five or six hundred miles of mountainous terrain?

Mr. GRAHAM. On a war project I never make an estimate.

Mr. FULTON. Who, in that conference, made any estimate of any kind?

Mr. GRAHAM. None was made that I know of.

Mr. FULTON. Who in that conference had any factual background to make any such estimate?

Mr. GRAHAM. I do not know. It would have taken months and months and months, and surveys and all kinds of things. Meantime we had a war on, and we still have one.

Mr. FULTON. How many tons of material did you figure would be shipped?

Mr. GRAHAM. I didn't figure.

Mr. FULTON. Where did you think you were going to get the ships?

Mr. GRAHAM. We figured on barges.

Mr. FULTON. Barges on the Mackenzie route?

Mr. GRAHAM. Yes; and the inside passage.

Mr. FULTON. How much did you figure it would cost per ton to cart materials over that route?

Mr. GRAHAM. We did not figure that. You can ask questions for the next half hour on that and I will have to say "No."

Mr. FULTON. In other words, would it shock you if I told you that, reading the Army's estimate on the cost of this waterway project, they spent \$26,463,070 developing and transporting materials over this Mackenzie route?

Mr. GRAHAM. Since you asked me if I would be shocked, I am not shocked at the cost of anything in war.

Mr. FULTON. Do you realize that amounts to a cost of nearly \$1,000 a ton to take materials over that route for this Canol project?

Mr. GRAHAM. Whatever it is, it's war. That is the only thing that was behind it. I never consider cost in war. That was one thing I was taught in the last war.

Mr. FULTON. Are you not aware that cost is simply manpower, plus materials, plus waste?

Mr. GRAHAM. Yes.

Mr. FULTON. With respect to manpower, did you not know that manpower in the Canadian-Alaskan area would be short, and difficult to obtain?

Mr. GRAHAM. We could take troops.

Mr. FULTON. Didn't you know that every man you diverted to this project to bring your pipe material up to Norman wells area was being taken away from the possibility of use in some other project in Alaska or elsewhere that might be more productive?

Mr. GRAHAM. My dear sir, when I wrote that memorandum I was ending a job. Since then I have had nothing to do with it. I made the best recommendation I knew in the light of the information I had. I have no missionary spirit in me. I have never, in 40 years, written a memorandum or anything else without making a recommendation. I made a recommendation. I made it personally. I did not put it on the others. They could take it or leave it. General Somervell himself could take it or leave it. I never asked him what he was going to do with any recommendation I made.

Mr. FULTON. You know the fact was, Dean, that General Somervell did take this 1-page memorandum,¹ and on the basis of it issued a directive,² as the result of which we have this \$135,000,000 project.

Mr. GRAHAM. I found out afterward. I never read the directive, even.

Mr. FULTON. Didn't you intend that he should act on the memorandum?

Mr. GRAHAM. He could act as he saw fit. He could take my memorandum I gave him, or anybody else's, and use it or throw it in the wastebasket. It is immaterial to me, after I have given my best recommendation.

Mr. FULTON. How did you determine that this pipe line should be 4 inches instead of 6 or 8?

Mr. GRAHAM. Because I knew a 4-inch line was a gathering line size, and you could pump 3,000 barrels of oil a day through it.

Mr. FULTON. Can you pump 3,000 barrels of oil a day through that 4-inch pipe line, from Norman wells to Whitehorse, at a temperature of 50° below zero?

Mr. GRAHAM. That has not been proved.

Mr. FULTON. You know you can't, don't you?

Mr. GRAHAM. No.

¹ Exhibit No. 1095, appendix, p. 9842.

² Exhibit No. 1096, appendix, p. 9843.

Mr. FULTON. Did you ever ask anybody if you could?

Mr. GRAHAM. They said they had pumped it. Now, it is a very simple thing, and I have done that, years ago, that if you can't pump it, if you get an oil that is too heavy for reasons of cold or other reasons, all you have to do is top off a certain amount of gasoline, put it in with your oil, pump it through, and when you get it off the other end, skim it off.

Mr. FULTON. Now, Dean, were you aware—

Senator KILGORE (interposing). Just a minute. That would mean running it through the skimming plant at Norman Wells before you put it through the line?

Mr. GRAHAM. A certain percentage. It doesn't take much to move it. You can get more details on that from General Pyron.

Mr. FULTON. Were you familiar with this letter of May 2 where the Imperial Oil people questioned the feasibility of constructing the pipe line?

Mr. GRAHAM. We knew it was difficult; no doubt about that. We knew the whole job was difficult. The highway was difficult. Everything in that country is difficult, and as far as the pipe lines are concerned, yes; they were difficult.

Mr. FULTON. Did you know that the Imperial Oil Co. recommended that it was so difficult, in their opinion, that they would consider flying in the oil products they needed for this Edmonton-Fairbanks route by tank planes rather than attempt to build a pipe line to Norman Wells?

Mr. GRAHAM. I looked upon the letter as an alibi.

Mr. FULTON. They were your only experts.

Mr. GRAHAM. Experts are the geologists that came down there and gave the evidence to General Pyron.

Mr. FULTON. Did you read this letter?

Mr. GRAHAM. My initials are on it; I suppose I did read it.

Mr. FULTON. But you don't remember it?

Mr. GRAHAM. Not in detail; no, sir.

Mr. FULTON. Does it surprise you to be told that the letter says [reading from Exhibit No. 1101]:

The feasibility of constructing a pipe line with the necessary pumping stations from Norman to Whitehorse over unknown country, a considerable part of which is known to be mountainous, and a great deal of which is reported to be muskeg, is a matter we have not attempted to investigate, either with regard to such feasibility or the expedition with which it might be accomplished, or its year-round operation. Apart, however, from considerations regarding the pipe line, the facts which we have outlined with regard to securing the production desired at Norman, lead us to submit for your consideration the feasibility of using cargo planes in lieu of the present plan.

Mr. GRAHAM. They were using cargo planes for ferrying gasoline into those stations at that time.

Mr. FULTON. It continues:

As pointed out, a large volume of hydrocodimer or alkylate blending agents will have to be transported to Whitehorse if that is to be the place of blending.

Mr. GRAHAM. You will have to speak to General Pyron about that.

Mr. FULTON. How did you propose to transport that alkylate and hydrocodimer to Whitehorse?

Mr. GRAHAM. I didn't propose it. I don't know.

Mr. FULTON. You did not consider how to get it there?

Mr. GRAHAM. I went by General Pyron's advice on that.

Mr. FULTON. What possible route would there have been to get it there?

Mr. GRAHAM. In the first place, it would have to depend on what you were going to make. If you are making 100 octane gasoline at that time, which didn't at that time particularly enter into my conception of the thing—as far as that is concerned, I do not know how to make 100-octane gasoline. I do not know what is required. I depended upon General Pyron on that.

Mr. FULTON. One further point: You spoke of the fact that despite lack of knowledge and definiteness as to whether they could increase this field, by the actual exploration and drilling that we have done since at the cost of a good many millions, the field has been increased to 20,000,000 barrels per day.

Mr. GRAHAM. I do not know exactly how much.

Mr. FULTON. But now, Dean Graham, I ask you what value is 20,000 barrels a day at Norman wells if you have a pipe line that will only take a little over 3,000 barrels, even in the summer?

Mr. GRAHAM. If you bring dollars and cents into this thing—

Mr. FULTON. I am not bringing dollars and cents into it.

Mr. GRAHAM. You asked me the value.

Mr. FULTON. I asked how you are going to transport 20,000 barrels a day over a 3,000 barrel a day pipe line.

Mr. GRAHAM. In my statement before on this same question, before the Joint Chiefs of Staff, I said: "Eventually you will have a larger pipe line."

Mr. FULTON. You mean you'd tear up the pipe line and—

Mr. GRAHAM (interposing). No; put another alongside of it.

Mr. FULTON. How big will that be?

Mr. GRAHAM. I don't know. It depends upon the size of the pipe. You may have two 8-inch pipe lines over there before you are through and I'll bet you the prediction that before many years go by you will have—

Mr. FULTON (interposing). When you get this down to Whitehorse what are you going to do, build a new refinery?

Mr. GRAHAM. They will probably have to enlarge the refinery.

Mr. FULTON. Then what are you going to do with the products? Are you going to build new product lines?

Mr. GRAHAM. When you get on economics, it is all out, the whole thing; it is war.

Mr. FULTON. I am talking about economics.

Mr. GRAHAM. All right. The only bearing it has now that I can see—all that oil—is an oil reserve for military purposes in defense in the future.

Mr. FULTON. What are you going to defend with?

Mr. GRAHAM. I don't know and you don't know either.

Mr. FULTON. Did you know then?

Mr. GRAHAM. No. We had the Japs definitely against us at that time. At the time that that memorandum was written Singapore had fallen; we had the Japs against us.

Also, at the same time, just a few days after that thing was written, we were licked in the Philippines. Just a month after it was written, Kiska was occupied. They stayed there for 14 months. We lost tankers on the Pacific coast during that same period. During that

same period tankers were getting to be a very precious thing all over the world, and it looked like our war might be localized here in the United States simply for the lack of tankers.

Senator KILGORE. Well, let me ask a question there. You said that you were informed that we would not use large troop movements in defending Alaska, large numbers of troops, that it would be air. Now, what good would truck gasoline do us for just purely air purposes, unless we are going to use it for transportation of bodies of troops?

Mr. GRAHAM. I wouldn't operate for 100-octane. I would bring my aviation gasoline over the highway. I don't mean that will be done; I am not advocating it, but it can be done. All motor oil, about 60-65-octane that comes out of the plant at Whitehorse to operate trucks, tank trucks, and other trucks; the whole 3,000 barrels can be used for that purpose.

Mr. FULTON. Dean Graham, did you have in mind that this expenditure of manpower and dollars, if you will, would amount to \$135,000,000?

Mr. GRAHAM. No, I didn't.

Mr. FULTON. Did you think that it could possibly come to any such amount at the time you recommended this in this one conference with Imperial Oil's representatives?

Mr. GRAHAM. I am getting to be—I have outlived my generation, you might say, because I have been in construction all my life, and the cost of construction these days runs all beyond my conception. I have seen some figures that it cost \$3.20 to do the same amount of construction that was done for \$1 in the last war. I do not know that that is right, but when you run into war construction here or in north Africa or anywhere else, when you get into dollars you get into such astronomical figures that they are way beyond me.

Mr. FULTON. Did you know, Dean Graham, that the Chief of Engineers would have to make arrangements to build this project if General Somervell directed it in a memorandum?

Mr. GRAHAM. Sure.

Mr. FULTON. Did you ask General Robins, who was present at your conference, what he recommended?

Mr. GRAHAM. No.

Mr. FULTON. Are you familiar with what he actually did recommend?

Mr. GRAHAM. No.

Mr. FULTON. I read to you a recommendation of General Robins, as quoted in a memorandum of the Imperial Oil Co. people of a conference held April 30. At that conference General Robins is stated by them to have said [reading from Exhibit No. 1097]:

General Robins, after reading the memorandum by Colonel Graham—that is, your memorandum recommending the project—

commented that 10 times the volume of deliveries contemplated by pipe line could be made by barges already available from inland United States rivers and at one-tenth the cost and effort, but added that he was prepared to do his best to carry out the orders issued.

Mr. GRAHAM. What of it?

Mr. FULTON. That is all I have.

The CHAIRMAN. Any questions, Senators?

Senator KILGORE. Yes; I should like just to sum up a little bit of that conference. How long before the April 29 conference had you been considering Norman wells and the potential refinery that you had under consideration? I am just speaking of the time.

Mr. GRAHAM. In point of view of time, I have a memory; I can't say I don't know. I talked it over with General Somervell a week or 10 days before this meeting, told him to get some technical men down from Imperial Oil Co. from Norman wells to give us some information.

Senator KILGORE. Wait a minute. That isn't the question, Dean. The question is, How long had you known of Normal Wells and had this thing under consideration prior to the conference of April 29?

Mr. GRAHAM. Oh. I would say for practically 2 months.

Senator KILGORE. Practically 2 months. Up until 10 days before, had you consulted with any oil experts on transportation, production, refining, with reference to the problems over there?

Mr. GRAHAM. No.

Senator KILGORE. Then up to the 29th, you, as representing the Government—I mean in your capacity as adviser—had not consulted with any experts as to the problems involved and relied on the information received at the April 29 conference for your memorandum, and that was all that was there?

Did you know at that time that General Pyron is not a refinery man, that he is a transportation and production man and knows nothing of refinery products except what he gets from his experts? Were there any other oil experts in that conference, other than General Pyron and the Imperial Oil Co. man?

Mr. GRAHAM. Not that I know of. There were several there.

Senator KILGORE. And all studies had been merely made from maps?

Mr. GRAHAM. Yes.

Senator KILGORE. Nobody had flown over the territory?

Mr. GRAHAM. No. General Somervell went over the territory the following August.

Senator KILGORE. After the conference. I am speaking of prior to the conference.

Mr. GRAHAM. Not prior to the conference; no.

Senator KILGORE. Was there any consultation with the Petroleum Administrator for War or his staff with reference to the oil problems up there?

Mr. GRAHAM. No.

Senator KILGORE. Or in the United States?

Mr. GRAHAM. No.

Senator KILGORE. Do you remember how soon after that the directive was issued on this project, after you wrote the memorandum on April 29?

Mr. GRAHAM. Sir?

Senator KILGORE. Do you remember how soon the directive was issued after you wrote your memorandum of April 29?¹

Mr. GRAHAM. What was the date of the directive?

Senator FERGUSON. It was the same day.

Mr. AMBERG. I think General Somervell approved the memorandum the same day, and the directive is dated one day later? The same day?

¹ See Exhibits Nos. 1095 and 1096, appendix, pp. 9842 and 9843.

Senator KILGORE. The directive, then, is dated on the same date the memorandum was issued.

Senator FERGUSON. Dean, do you know of any other knowledge that the general had in issuing the directive than your memorandum?

Mr. GRAHAM. No.

Senator FERGUSON. Did you consult the Navy as to what they could do on transportation?

Mr. GRAHAM. No.

Senator FERGUSON. You didn't consult them?

Mr. GRAHAM. No.

Senator FERGUSON. You didn't consult the petroleum department—Mr. Ickes?

Mr. GRAHAM. I have already said "No" on that, Senator.

Senator FERGUSON. Was there any reason for not consulting the petroleum department?

Mr. GRAHAM. It was a Canadian proposition, that was all.

Senator FERGUSON. You didn't think that Mr. Ickes would know or his staff would know anything about it?

Mr. GRAHAM. I am not familiar with Washington situations and set-ups.

Senator FERGUSON. You weren't told that it was a matter of strategy and therefore Mr. Ickes was not to know of it?

Mr. GRAHAM. What is that, sir?

Senator FERGUSON. I say it wasn't because it was a question of strategy; was it?

Mr. GRAHAM. No. It was a military matter entirely. If he had to go into it, then somebody would have to give him permission to be called in on it.

Senator FERGUSON. Do you know why they have never considered connecting the airfields in Alaska by highways? We have an airfield at Bethel, one at Nome, and one at Ruby, and they are about the same distance apart as the Canadian airports. Can you give us a reason why you didn't think of connecting those airports by road or of supplying them with gasoline by pipe line?

Mr. GRAHAM. I have a vague recollection of hearing—it was never discussed with me—that there was a proposal to build such roads, and then it was canceled. You will have to ask somebody else about that. That is merely hearsay.

Senator FERGUSON. You have given us all that you know on that question?

Mr. GRAHAM. All I know.

Senator FERGUSON. That is all.

Senator KILGORE. I want to ask one more question.

The CHAIRMAN. All right, Senator.

Senator KILGORE. What geological knowledge did you have at that conference as to the potentialities of the Norman fields?

Mr. GRAHAM. Only the geological sheets that were brought down by the geologists who appeared at that meeting. They were examined entirely by General Pyron.

Senator KILGORE. What geologists were present? The Canadian Government? They were Canadian geological surveys, were they not?

Mr. GRAHAM. I do not know. They came as members of the Imperial Oil, sent by Imperial Oil. They had geological sheets, colored

and so forth. That went on, and I sat and listened and never asked a question.

Senator KILGORE. All right.

The CHAIRMAN. Senator Hatch, did you have a question?

Senator HATCH. Only generally. I want to know if I understand the witness correctly in what he has said.

You obtained the information from the Imperial Oil Co. that there was a chance to get 3,000 barrels of oil up there in that field, and upon that chance you recommended the project, without regard to cost or anything else. The idea was to get the oil.

Mr. GRAHAM. I don't regard cost in time of war.

Senator HATCH. That is all.

The CHAIRMAN. Senator Connally, did you have a question?

Senator CONNALLY. I don't believe I care to ask more than one question. Your approach to this was purely from a military standpoint?

Mr. GRAHAM. Purely, sir.

Senator CONNALLY. It was a military problem.

Mr. GRAHAM. And as an economic proposition, the whole thing was cockeyed from the beginning. If it didn't have the military behind it, it is nothing. Even now, in peacetime, taking the whole thing with the production 10 times what we thought it would be at that time, it is still uneconomical.

Senator CONNALLY. What you meant to say was that in normal peacetimes, you wouldn't, of course, recommend it?

Mr. GRAHAM. No; wouldn't touch it.

Senator CONNALLY. You wouldn't recommend an investment of this magnitude for the result.

Mr. GRAHAM. In normal peacetimes I would have spent 2 or 3 years investigating the thing first.

Senator CONNALLY. But on the ground that it was wartime, when airplanes are so vital and motor fuels are so important, you figured that it was necessary to get the oil, and that is why you did it?

Mr. GRAHAM. That is so. My premise was almost entirely on General Streett. He was on the General Staff, an Air Corps officer. He said, "If we can get oil up there anywhere, it would be a lifesaver." He didn't say "100-octane"; he didn't say "85-octane": and he didn't say "motor fuel." He just said, "If we can get oil up there, it will be a lifesaver." He repeated that twice in two meetings. That influenced me very vitally, sir.

Senator CONNALLY. That is all.

Senator FERGUSON. Did you consider in what time you could get the oil so that it would be of any use to the military authorities?

Mr. GRAHAM. If you read my memorandum, I put a very strenuous schedule there of timing.

Senator FERGUSON. But if you didn't know how much manpower was to be used in connection with it, how could you schedule the time, with the difficulty of doing it? How could you schedule the time?

Mr. GRAHAM. Senator, you can call it hopes, if you want to.

Senator FERGUSON. It was hopes, then. Did you give any data to General Somervell other than your memorandum?

Mr. GRAHAM. The memorandum is all I gave him.

Senator FERGUSON. That is all.

The CHAIRMAN. Mr. Fulton, did you have a question?

Mr. FULTON. With respect to the time, did you know that it would take years longer than the time put in your memorandum?

Mr. GRAHAM. I say, on the schedule I put, it was hopes. I knew you had to work by seasons.

Mr. FULTON. Did you realize that, unless you could get the oil up there quickly, the great value of your project would be very much impaired?

Mr. GRAHAM. I didn't know that the war would move westward in a year, and no one else did.

Mr. FULTON. But didn't you know that we were building a Navy and that perhaps that Navy could begin to defend the inland passage of Alaska sometime in '44?

Mr. GRAHAM. Yes; that is all true.

Mr. FULTON. And if the Navy couldn't, didn't you know if you could transport pipe line up the Mackenzie River, you could also transport gasoline?

Mr. GRAHAM. It is also true that it was more than a year afterward before the Navy solved the submarine difficulty.

Mr. FULTON. With respect to this question of getting gasoline up there so that it would be useful, did you or anybody else ever weigh the quantities of transportation that were available and how much gasoline you could bring up and store against the amount of transportation facilities you would need to get the materials up there to build the project?

Mr. GRAHAM. No.

Mr. FULTON. Wouldn't you say, Dean, that if you could bring up gasoline quicker and store it with the same amount of transportation facilities, that would be at least as valuable from a military standpoint as this project?

Mr. GRAHAM. I am not a military man, sir, although I have had a great deal of experience in lines of communications in the last war. I served on all four boards. I was appointed to study lines of communications in France. I was the only officer who did serve on all of them. That is the only reason I am in Washington. I have no other reason to be here. General Streett, whom I respect very highly, was then ferrying oil and gasoline, gasoline of all grades, especially 100 octane or 85 octane (I don't know which), to those airfields at that time. All of it was being ferried in by airplane. All he said was, "If you can get oil in there, it would be a godsend."

Mr. FULTON. Dean Graham, will you look at the map over there? How far was it from Skagway to Whitehorse, where your refinery would be?

Mr. GRAHAM. From Skagway, if my memory serves me right, it is about 125 miles by rail.

Mr. FULTON. Dean Graham, if the Japanese Navy could prevent us from reaching Skagway, don't you think they could bomb this refinery 125 miles from Skagway?

Mr. GRAHAM. There are pretty high mountains in-between.

Mr. FULTON. How high?

Mr. GRAHAM. I don't know.

Mr. FULTON. Ten thousand feet?

Mr. GRAHAM. Some of them run up to ten and fourteen thousand feet.

Mr. FULTON. Are you aware of the altitude the modern bomber reaches?

Mr. GRAHAM. Oh, yes; you can go up in the stratosphere, thirty-three, thirty-five thousand feet.

Mr. FULTON. What would happen to your refinery if it got bombed?

Mr. GRAHAM. If they could hit it, it would be pretty bad; yes.

Mr. FULTON. If we couldn't defend the inner passage, could we defend the refinery?

Mr. GRAHAM. I wasn't thinking about a particular defense. I was thinking about all-over defense.

The CHAIRMAN. That is all, Dean Graham.

Under Secretary Patterson, please. I am sorry to keep you waiting.

Mr. PATTERSON. After all, I appreciate your consideration, Mr. Chairman.

The CHAIRMAN. When a Senate committee gets to questioning a witness, you can never tell how much time it is going to take.

We are somewhat familiar with the statement that you are going to make to us, Mr. Secretary, and we appreciate your coming up, but we also expect to give General Somervell a chance to appear before this committee and also state to us a few facts which we think he should make clear to the committee as a result of the private hearings which we have held. Will you proceed, please, Mr. Secretary?

TESTIMONY OF HON. ROBERT P. PATTERSON, UNDER SECRETARY OF WAR

ARMY'S JUSTIFICATION FOR THE PROJECT

Mr. PATTERSON. I have a prepared statement, Mr. Chairman. At a place in it I am going to strike out a couple of sentences, with the committee's leave——

The CHAIRMAN. That is all right.

Mr. PATTERSON. That I would prefer not to make.

The CHAIRMAN. Any statement that you make to this committee you are privileged to make, sir.

Mr. PATTERSON. The War Department is proud of Canol. That project comes from the vigorous efforts of the Army to produce a local supply of petroleum products along the land and air route to Alaska. Canol was a bold undertaking. The results so far have surpassed our hopes. We are confident that even greater success lies ahead.

I want to review briefly the situation that faced us in Alaska at the beginning of the war, the reasons for our decision to develop Canol, the obstacles we overcame, the success that has resulted from our efforts to date, and the outlook for the future.

The Army took bold and prompt action in the dark days of 1942. We uncovered a rich continental resource of oil, far beyond the original target of 3,000 barrels a day. Twenty thousand barrels a day is now assured. We already have uncovered an estimated pool of 50 to 100 million barrels. That is a major oil field in anybody's language. But for our action this would not have been discovered. Had our endeavor been unsuccessful it would have been a set-back to us. But we should not have been censured for having tried. Now that oil in large

quantity has been discovered and can be put to use, our enemies are the ones to be discouraged.

This job of strategic importance for carrying on the war has been approved by the Joint Chiefs of Staff. That should settle any doubts.

DESCRIPTION OF THE PROJECT

The projects, grouped under the name "Canol," when completed, will include:

The committee, no doubt, is very familiar with the lay-out up there. But I always have to look at a map, so I asked them to bring a map up here, and it is that colored map.

First. Development of the oil fields near Fort Norman on the Mackenzie River, in the Canadian Northwest Territories.

Second. Construction of a pipe line to carry crude oil from the Norman field 600 miles to Whitehorse, in the Yukon Territory—that is shown there in yellow, or orange—at the middle point on the Alaskan Highway.

Third. Dismantling of a refinery in Texas and its re-erection, with additions, at Whitehorse, for the processing of aviation and motor gasoline and other petroleum products.

Fourth. The construction of pipe lines to carry gasoline and other petroleum products—product pipe lines, those are—from Whitehorse to the port of Skagway, Alaska, at the head of the Inland Passage; to Fairbanks, Alaska, the terminus of the Alaskan Highway; and to Watson Lake, Canada, down the highway toward the United States. Those are the reds. The two pipe lines last mentioned parallel the highway and are for the purpose of fueling airfields and motor traffic along the highway. The pipe line to Skagway may be operated in either direction to bring in fuel shipped by sea or to deliver at tide-water fuel produced at Whitehorse.

This committee has been given access to our files covering details and costs of these projects. You have taken testimony at Whitehorse and at Washington in executive session. Considerations of military secrecy changed when the Japanese were driven from the Aleutians. So we have made no objection to your making public all details except a few that have a direct bearing on possible future military operations.

PETROLEUM RESOURCES

Military and essential civilian needs for oil exceed the production obtainable from continental United States. The depletion of our petroleum reserves has caused not only the armed services, but American industry—and the American automobile owner—serious concern. Five Senators, two from this committee, after their recent trip around the world visiting the military areas, expressed the view that United States petroleum should be conserved and, so far as practicable, oil should be obtained nearer the theaters of military operations. I will take the liberty of expanding on that a little later, because particularly the second part of that has been a prime policy of the Army since the outbreak of hostilities. This, as well as the saving of ocean shipping, is why we sought to discover oil in New Zealand and Australia as well as in the region close to Alaska. Our hopes in those other regions

thus far have not been realized. But our attempts should not be criticized. The Petroleum Administrator for War has indicated the declining production in the United States, particularly on the Pacific coast, and the need of new discovery.

We entered the war dependent on dwindling United States reserves. In the previous 5 years 46,000 oil wells had been abandoned. New wells were being brought in at a decreasing rate. Crude oil stocks on the west coast dropped 1,895,000 barrels in March 1942. Hence, it is beyond dispute that a petroleum supply for Alaska and its communications obtained in the vicinity, rather than through transportation from the United States, was and is of prime importance.

SITUATION IN THE SPRING OF 1942

The Canol project was initiated by the Army in April 1942. Pearl Harbor was only 4 months behind us. In the eastern Pacific, from Panama to the Aleutians, our shipping was vulnerable to Japanese attack. We had not yet won the Battle of Midway Island, a great victory which weakened the Japanese Navy and reduced the range of its operations. Corregidor, our remaining fortress in the Philippines, was beleaguered and about to surrender. The Allies had lost Shanghai, Guam, and Hong Kong in December, Malaya in January, Singapore and many islands in February, and on one February day—the 27th—the Allies lost 14 ships of war in battle in that area. On the 16th, enemy submarines shelled an oil refinery in the West Indies, and we were rushing troops down there for protection of the refineries there. The oil of the Dutch East Indies was passing to Japanese control.

The western and southwestern Pacific were being lost. All available transport, especially oil tankers, were required to reinforce these and other theaters throughout the world. At the same time, German submarines in the North and South Atlantic and in the Gulf of Mexico were delivering heavy blows against our tankers. They were being sunk in great numbers. More than 1,000,000 gross tons of tankers were sunk up to the end of April 1942. Every tanker we owned was precious.

It is easy enough now to look back calmly on the first few months of the war and to apply the yardstick of hindsight to our efforts. But let us remember that we had no firm assurance then that the continental United States was free from invasion. Japanese submarines operated within sight of our west coast. On February 23, 1942, they shelled a tank farm and refinery near Santa Barbara, and later they struck at Oregon.

General Marshall has said in his biennial report of July 1, 1943:

Since the Japanese attacks on the Pacific Fleet in Hawaii had uncovered the entire west coast of North America, the reinforcement of garrisons along the west coast, Panama, Hawaii, and in Alaska was given first priority. The movement of air forces and antiaircraft units was initiated immediately by flight and fast freight specials.

THE ARMY PLANS FOR DEFENSE OF ALASKA

The defense of Alaska was paramount in the minds of the American people. Their concern was well-founded. While the Japanese landing on Kiska and Attu and the bombing of Dutch Harbor did not occur

until some weeks later, we had to make plans against the possibility of attack along this short route from Tokyo. Had the Japanese been able to capture and hold bases on the Alaskan mainland, Canada and the United States would have been open to attack.

Because of the situation and vast extent of Alaska, it was determined that its defense, aside from naval action, was mainly dependent upon air power. Our combat planes, both bombers and fighters, had to reach their Alaskan bases. In addition to defending Alaska, it was then our plan, since consummated, to ferry combat planes to Fairbanks, there to be delivered to the Russians for use against Germany on the Russian front. This is the short Arctic route to Russia. The best available route for planes from this country to Alaska is to Edmonton, Alberta, and then along a line of airfields through Whitehorse to Fairbanks, and a large number of planes have been delivered to the Russians along this route and are still being delivered in undiminishing numbers. Our fighter planes, and to a lesser degree our bombers and cargo ships, required servicing en route. Emergency landings required additional service at intermediate points. The defense of Alaska, so important to the United States, thus depended in large measure upon our delivery of planes to the Alaskan theater and our maintaining and operating them there. A road, 1,600 miles long, from the railhead north of Edmonton, Alberta, to Fairbanks in the heart of Alaska, was necessary to connect and supply the airfields along the route. The location of this route was approved unanimously by the Secretaries of War, Navy, and Interior. This projected highway passed through Whitehorse at about its middle point. The road also constituted an alternate route for the supply of Alaska, should the sea route be further endangered. Therefore, the plans for the defense of Alaska, the construction of the Alaskan Highway, and the furnishing of fuel for planes and vehicles on the highway were all parts of one and the same military problem.

THE DECISION TO USE NORMAN OIL

Dr. Vilhjalmur Stefansson, the Arctic explorer, early in 1941 called our notice to oil wells near Norman on the Mackenzie River. He pointed out that oil had been discovered there in 1920 and that for a number of years Imperial Oil, Ltd., a Canadian subsidiary of Standard Oil Co., of New Jersey, had several producing wells and a small refinery serving the needs of the lower Mackenzie Valley, where fuel requirements were relatively small. Stefansson, an expert on the Canadian north, whose knowledge has been of great assistance to the Army on Arctic problems, repeated his suggestions in 1942. He believed that the oil field could be developed to greater capacity and that it was feasible to build pipe lines to fuel the highway. He pointed out the possibilities of transport of needed equipment along the Mackenzie River system to Norman. Although some details of Stefansson's plan were not followed, it was his vision and knowledge which fathered the project.

General Somervell, commanding the Army Service Forces, had been considering for some time the problem of supplying fuel on our route of communications. Colonel Graham, until the war dean of engineering at the University of Kentucky, a man of broad experience

in construction and also in Army transport operations in France in the last war, was asked by General Somervell to look into oil possibilities. Colonel Graham was serving in the War Department as special consultant to General Somervell. Among others, Colonel Graham consulted General Pyron, General Carter, and General Streett. General Pyron, formerly vice president of the Gulf Oil Co., was the Army's principal consultant on petroleum matters. General Carter, in addition to his West Point training and years of experience in the Regular Army, had been in civilian life the senior partner of Haskins & Sells, public accountants, and had dealt with important business matters. General Streett, an able Air Force officer, was then a member of the Operations Division of the General Staff. All of these four gentlemen have testified before your committee in executive session, and all but General Streett will appear today. General Streett has been called to other important duty, or he, too, would be here.

General Carter asked experts of Imperial Oil familiar with the Norman field to come to Washington for conference with himself, the others, and a representative of the Board of Economic Warfare. It was learned that the oil was of excellent grade for the manufacture of aviation fuel and motor fuel and that it could be pumped through pipe lines in extreme Arctic weather at 55° below zero or lower. The Imperial representatives were conservative as to prospects for further oil discovery, and they did not urge the Army to undertake the project.

Time was short. To explore first for oil and to make complete engineering surveys of pipe-line routes through the Arctic wastes before taking action, would have consumed a year or more. In light of the actual production being obtained at Norman wells and the geological data, the Army decided to proceed forthwith. The military necessity was great. Extensive investigations, practicable in commercial developments, could not be awaited. The Army started action at once. The battle has now been won, where a cautious approach would have left the campaign still in the planning stage.

ALTERNATE SOURCE OF FUEL

This was a military project, not a commercial one. It was born of military urgency. Hence it is not decisive to compare the cost per barrel of petroleum products delivered through Canol with the cost of products refined in the United States and brought up by tanker or flown up along the highway by airplane. I grant that the cost will be high, but I repeat this was a war measure. One might as well criticize the cost of capturing the Salerno bridgehead by stating that the land acquired was worth only a few dollars an acre. The ocean route was subject to interruption and, in any event, tankers were and are a scarce commodity, as are tank cars which would be needed to augment our California supply.

Senator CONNALLY. Judge, would it interrupt you if I asked a question right there?

Mr. PATTERSON. Not at all, sir.

Senator CONNALLY. That suggestion would have ignored entirely the increased production that you had in mind, would it not? Bringing it up by tanker from the States would have ignored entirely your theory that you were getting a whole lot of new oil, wouldn't it?

Mr. PATTERSON. That would. That would have been a mere redistribution of our existing oil supply within the continental United States. But the point I was emphasizing here was the additional strain that it would have placed upon transportation facilities, both tank cars and tankers, being one of the scarcest commodities we have had all through this war. Transport airplanes can carry gasoline, but our planes are needed elsewhere. By any other method, the fuel would have come from declining United States reserves. Here was a new source near the scene.

Possibilities for oil production in Alaska, rather than Canada, were considered. There are petroleum indications in Alaska which I hope will eventually be developed. Up to now no successful production has been obtained. So we went after the oil we knew was there on the Mackenzie. The Secretary of War is now cooperating with the Secretary of the Interior with a view to developing Alaskan oil resources. Such development, even if successful, will take time. There was no time in April 1942.

It should not disturb us that most of this development is in Canadian territory instead of in Alaska. Canada is our friendly neighbor, our staunch ally, united with us in this war. The defense of Alaska, Canada, and the United States is one problem, not several. A contingent of Canadian troops, you will recall, took part with our forces in the operation to recover Kiska. Oil discovered in Canada will not be withheld from our use when needed for our joint defense.

EXECUTION OF THE PROJECT

Since the spring of 1942, courageous work has been done by the Corps of Engineers and its contractors. Transportation difficulties down the Mackenzie River system were overcome. Oil exploration proceeded with success and beyond expectations, as I have stated. The petroleum pipe line to Whitehorse will be in operation early in 1944; the refinery, by spring. The Skagway-Whitehorse product line is in operation. So is the pipe line to Watson Lake. The pipe line to Fairbanks will be open in a few weeks. The total estimated cost of the entire project, with necessary accessories and transportation, as of November 1 was \$134,000,000. I do not wish to minimize this figure, but I do point out that it is less than 1 day's cost of the war. Of this, \$34,000,000 is the cost of the distribution product pipe lines which were needed in any event, even if the rest of Canol had not been conceived. Mr. Frederic A. Delano, Chairman of the National Resources Planning Board, after an inspection trip last July, reported:

The proposed delivery of crude oil to the Whitehorse refinery seems fully justified, and the distribution of gasoline from there is a natural and important sequence.

THE PRESENT SITUATION

I have tried to place before you the situation where the Army was in the spring of 1942, when the logistics problem for the supply of the route to Alaska had to be solved. Fortunately, in the year and one-half that has since transpired, the threat to Alaska has been relieved. Accordingly, last spring and early summer the need of completing the project was reviewed in light of our stronger position in Alaska and the eastern Pacific. The War Department General Staff

in July 1943, determined that world-wide oil and tanker shortages dictated that Alaska be made self-sufficient insofar as possible, that military necessity then existed for the provision of aviation gas to support a major air offensive against Japan, and that the Canol project would be of potential aid to this offensive. The General Staff therefore determined that the Canol project, as now being carried on, should be completed.

This fall the subject was reviewed again, being referred to General Marshall, Admiral King, General Arnold, and Admiral Leahy, the Joint Chiefs of Staff, and representing both the Army and the Navy. After full consideration, the joint chiefs of staff, on October 26, determined that the completion and operation of the Canol project is necessary to the war effort.¹ They accordingly directed that the project be completed and operated as soon as practicable and that consideration be given to exploration and development for a full recovery of the predicted reserves in the Norman field.

I am a civilian. Military strategy is not my line. Like most Americans, I rely upon our General Staff and our joint chiefs of staff.

But it must be apparent to all that the success of the Canol project may be the determining factor which will control the size and extent of an air offensive aimed at the heart of the Japanese Empire. The world-wide shortage of tankers and petroleum products is such that our offensive air operations might be measured by our capacity to produce and distribute petroleum products where needed and at the time required.

A member of this committee, Senator Burton, as long ago as October 3, 1942, after a tour of the Alaskan front, made this statement:

The direct route to the heart of Japan is obviously the Alaskan route. We are only 2,500 miles from Tokyo. The Japanese defenses to its north are far weaker than those to the south, and the northern route is shorter for us. We must not lose 1 foot of it, nor neglect the opportunity we now have to open and prepare this route so that some day it will be suited to the needs of an irresistible avalanche by air, land, and sea that will win our war against Japan.

It may be said that we constructed a pipe line and erected a refinery with a capacity of only 3,000 barrels a day, while we have proceeded with exploration at the oil field to obtain a much larger production. If in the spring of 1942 we had known all we know today, we should have provided a larger pipe line and refinery. It is not too late to increase the capacity for transportation and refining, if that seems advisable.

THE IMPORTANCE OF SOURCES OF SUPPLY NEAR THE FIGHTING FRONTS

The development of local sources of supply for our fighting forces in the various theaters of war has been pressed by the Army in every possible way. The importance of this cannot be emphasized too strongly. The long supply lines stretching from sources of production in this country to the far-flung battle lines have presented and still do present one of our most vexing problems. It has been our policy from the first to get our military supplies from sources as near as possible to the fighting forces. The development of production at those places renders our supply independent of interruptions due to hostile submarine activity against our shipping routes. More important than that, it enables us to relieve to some extent the severe strain that is still felt on our merchant shipping.

¹ In this connection see subsequent statement of Mr. Patterson, under date of November 24, 1943, appendix, p. 9912.

It is this policy that has led us to procure in Australia and New Zealand food, clothing, and many other items for our troops serving in that theater. We did our best to find petroleum in New Zealand, but the holes we dug turned out to be dry. We are developing the same kind of program in North Africa and in India.

With the committee's leave, I will omit the next two sentences (in the mimeographed manuscript).

The CHAIRMAN. That is all right.

Mr. PATTERSON (continuing):

POST-WAR USES

Our arrangements with Canada and Imperial Oil, Ltd., permit us during the war to take, transport, and refine all the oil we wish. The contracts and exchanges of notes do not give us post-war rights in this respect. There are provisions whereby, out of the price of the oil, a part of our cost in developing the oil field will be repaid. That, I might say, only goes, of course, to the expenses incurred in the Norman fields, and not to the pipe line or refinery or product pipe lines. Canada has an option to acquire the refinery and pipe line at the end of the war at its then appraised value. If it does not exercise the option, it may be sold by public tender at not less than that price. If not so disposed of, disposition of the facilities are to be referred to the Permanent Joint Board on Defense of the United States and Canada. Both Governments have agreed not to allow dismantling unless recommended by the Permanent Joint Board.

As I told you, Canol was begun as a military installation. We were not concerned then with its commercial use. We were too busy staving off defeat.

As we survey the project now, it is apparent that on the initiative of the United States and at our expense, and for military reasons affecting the joint defense of Canada and the United States, we have developed in Canada a valuable resource beyond their or our expectations. There is no substantial market for the oil at the field on the Mackenzie River. Its principal outlet is at the end of the pipe lines in or near Alaska. The value of the petroleum for the defense of Alaska and the Canadian Northwest in future years and for the further development of this vast, almost untouched territory, is great.

The War Department has initiated discussions on this whole question with the State Department and the Canadian Government. As a result of these discussions I have confidence that an arrangement will be worked out with the Canadian Government for the future use of this oil on a basis completely fair and equitable to both countries.

The Canol project, as far as I know, is the first major venture of the United States Government in oil production on foreign soil. After our experience with gasoline rationing and the serious depletion of our own crude-oil reserves, I believe that the American people may favor similar ventures in the future. This committee in a recent report has suggested that we obtain oil rights in other countries.

Our participation in oil reserves on foreign soil is necessary to our national welfare and our future defense. This applies especially to the defense of the North American Continent. We cannot continuously expend our own resources and expect to keep the wheels of our Nation moving and our planes and shipping engaged in the traffic of

the world. This fact was recognized by the Secretary of War, who, in a letter to the Secretary of the Navy dated October 29, 1943, stated:

I am in agreement with you that in the interest of national defense it is becoming increasingly important to provide more adequate military oil reserves both in this country and, if possible, abroad.

When we started Canol we were met by plenty of objections. It was said there wasn't any oil at Norman Wells. It was said that it was impossible to take equipment there to drill. It was said that a pipe line through the mountains to Whitehorse could never be completed. It was said that the weather was so severe that the oil would not flow in the lines. And so on. We are disproving every one of these objections. The objections reminded me of the protests made when this Nation acquired Alaska in 1867 through the action of Secretary of State Seward—"Seward's Folly," it was called.

I am fully convinced that what we have done so far is sound and that Canol will be a continuing benefit to our country in its peacetime economy, just as it is during this war.

I desired to appear before you to make this statement—not in defense of the project, but in a spirit of pride that the Army had the courage to meet this challenge of military necessity and prosecute it vigorously to a successful conclusion.

Senator CONNALLY. Mr. Secretary, just one question: General Pyron is a member of your advisory staff on oil matters, is he not?

Mr. PATTERSON. Yes, sir.

Senator CONNALLY. And he was in touch with this situation?

The CHAIRMAN. He will be a witness here, Senator.

Senator CONNALLY. I know he will; that is a reason I am asking this question.

Mr. PATTERSON. He was in touch with this situation from the outset.

Senator CONNALLY. He was formerly with the Gulf Oil Co.; isn't that true?

Mr. PATTERSON. Yes, sir.

Senator CONNALLY. And he is not connected with the Standard of New Jersey or the Imperial?

Mr. PATTERSON. In no way.

Senator CONNALLY. In no way on earth?

Mr. PATTERSON. He has been on active military duty for over 3 years.

Senator CONNALLY. I understand that.

Mr. PATTERSON. And has been in charge of our oil matters since the summer of 1941.

Senator CONNALLY. He is regarded as an outstanding authority on oil matters, is he not?

Mr. PATTERSON. I believe he is. He is certainly highly regarded in the Army.

Senator CONNALLY. He has been in charge of the high-octane development and all of your oil matters in the War Department?

Mr. PATTERSON. Yes, sir.

Senator CONNALLY. Thank you.

The CHAIRMAN. Are there any other questions, Senator Connally?

Senator CONNALLY. That is all.

The CHAIRMAN. Senator Kilgore.

Senator KILGORE. Mr. Secretary, I was rather impressed with one observation made by Senator Connally earlier with reference to adding

this to our depleted oil reserves. I was interested in a figure here of \$17,224,860 being spent in prospecting and developing the Norman wells field. I was also rather interested in the fact that that was started, according to the testimony of Colonel Graham, only on the advice of two oil experts from Imperial Oil Co., who had the lease at Norman wells. And at the same time, the statement has been repeatedly made to committees of the Senate that if the price of oil could be raised 35 cents a barrel in the United States, secondary methods of extraction of the dwindling fields could be used which would vastly increase our present production. Take that sum and divide it up, and I find that would have paid the 35 cents on something over 500,000,000 barrels of oil.

Mr. PATTERSON. I am not in any way defending this as an economical measure, Senator. I don't know enough about the exploiting of our oil reserves right within our own Nation to pass any judgment upon that statement at all. I have no doubt that oil could have been found cheaper than this oil. There is no doubt of that.

Senator KILGORE. Yes; but, Mr. Secretary, the point I am getting at is, without the use of secondary methods of extraction of oil, we waste a tremendous lot of oil in the ground. In other words, we feel very lucky if we got 50 percent recovery by normal methods, and secondary methods are more expensive, and necessarily the oil must bring a greater price. I am wondering if we are also giving our own oil people the proper consideration in considering this, too, considered in the same light, because we are paying \$1.25 a barrel royalty up there on oil in the ground under this contract, and the royalty paid in the United States will run around 25 to 30 cents a barrel to our own people.

Mr. PATTERSON. I don't understand this to be a royalty. They have the oil; they sell the oil to us.

Senator KILGORE. In the ground.

Mr. PATTERSON. They operate it, as I understand it.

Senator FERGUSON. No.

Senator KILGORE. We pay all the cost of operation.

Mr. PATTERSON. Yes.

Senator KILGORE. We pay the cost of getting the oil out of the ground—the drilling of the wells and doing the exploration. That is just exactly what we call exploiting in the United States with reference to our landowners when they have oil on their land.

Mr. PATTERSON. They have the operating responsibility, however, under the contract. You will have to handle those details with General Pyron.

Senator KILGORE. All right.

Another question I was very much interested in was this: According to the estimates on the production from this refinery and this pipe line in the field, under the original proposed program incorporating the Houdry process, if we could run the refinery 330 days a year, we would get 1,505 barrels of high-octane gasoline a day; also, under the present system we only get 479 barrels a day. Now, taking the strategic situation that existed at that time, I am wondering really how much of an aid that aviation gasoline would be to the strategy of defending Alaska with an all-out air defense at that time.

Mr. PATTERSON. Any supply you could get at the source—what are you laughing at, Mr. Fulton?

Mr. FULTON. No matter.

Mr. PATTERSON. You have been laughing all through this. I haven't seen the humor in it yet.

PLANNING OF THE PROJECT

Mr. FULTON. I have been laughing at the concept that any supply, no matter what it was, would be valuable, without regard to the cost in man-hours and materials together.

Mr. PATTERSON. Man-hours and materials on a project like this is a matter of military priority.

Mr. FULTON. That is right.

Mr. PATTERSON. And the military priority of this has been declared by the General Staff and by the Joint Chiefs of Staff.

Mr. FULTON. When?

Mr. PATTERSON. By the Joint Chiefs of Staff less than a month ago.

Mr. FULTON. Was it ever submitted to them at the time this project was conceived?

Mr. PATTERSON. No; it was not. What has that got to do with it? They have approved it and called for its completion.

Mr. FULTON. Why?

Mr. PATTERSON. As a matter of military necessity.

Mr. FULTON. Have they given the details of that?

Mr. PATTERSON. A careful study was made by their production survey committee and approved by the Joint Chiefs of Staff.

Mr. FULTON. Why wouldn't it have been done before they undertook this \$135,000,000 project?

Mr. PATTERSON. It was not—the Joint Chiefs of Staff were not then so staffed or arranged to handle any matter of this type on military supplies.

Mr. FULTON. Was the General Staff consulted?

Mr. PATTERSON. They were. General Streett, of the Operations Division, participated in the matter.

Mr. FULTON. No. We have had General Streett's testimony. Was the Staff itself consulted?

Mr. PATTERSON. General Streett, the Operations Division of the General Staff, took part in the discussions.

Mr. FULTON. Have you read his testimony before this committee?

Mr. PATTERSON. I have not, but I have talked to him.

Mr. FULTON. You know, then, what he told us?

Mr. PATTERSON. No, I don't know what he—I haven't talked with him since he appeared here.

Mr. FULTON. Did you know he told us that he never made an estimate of his requirements?

Mr. PATTERSON. No. He may well have said that.

Mr. FULTON. That means nothing to you as a matter of—

Senator CONNALLY (interposing). Mr. Chairman, I don't think that—

Senator KILGORE (interposing). Mr. Chairman, I haven't finished yet.

The CHAIRMAN. I want to say to the Senator from Texas that this committee has been carrying on this investigation as a subcommittee consisting of Senator Kilgore and Senator Ferguson here, with the counsel and assistant counsel of the committee. We have a record that

thick, with the facts backing this thing up, and the Under Secretary of War brought the counsel into it before I called on him. I am not going to stop the counsel as long as he wishes to ask questions.

Senator CONNALLY. I don't mind the counselor asking questions, but I don't think it is quite fair to a witness like this to say, "That doesn't mean anything to you?" I don't think that is quite courteous.

The CHAIRMAN. I think it ought to mean something.

Senator CONNALLY. It does, I am sure, and as I understand the Secretary, he is not trying to justify this on a long-time, peace basis, but he is trying to justify it as a military project, that if you need a gallon of gasoline to save a life, the public—that is a rather broad way to put it—you are willing to pay anything that is necessary to get that gallon of gas.

The CHAIRMAN. I think we are all in that frame of mind, Senator, but I don't think it was necessary to take this \$134,000,000 to get a prospective 1,500 gallons of high-octane gas. The way the plant is now set up we won't get over 450 barrels.

Mr. PATTERSON. Of course, we have the motor fuel, too, Senator.

The CHAIRMAN. Four hundred ninety-seven barrels.

I want Senator Kilgore to proceed with the examination he started.

Senator KILGORE. Mr. Secretary, I was also interested in the quotation from Senator Burton's report on his visit to Alaska. With reference to the lay-out of this present situation, granting that the proper jump-off point for an attack on Japan lies in the Aleutians and Alaska, the present situation of this refinery seems to me to present a much greater transportation problem than with a refinery in Alaska itself, at Fairbanks. Our present supply system goes into Fairbanks. We have absolutely no means for summer or winter transportation for gasoline beyond Fairbanks, down the river; whereas, had we had a refinery at Fairbanks, we could not only have explored the fields in Alaska which showed wonderful geological prospects, according to the Petroleum Coordinator, but also could have shipped out on the standard-gauge railroad to Seward, which is much better protected than the more dangerous route across from Skagway to Kodiak, in which you do hit the open sea.

Mr. PATTERSON. I understand a number of factors indicated Whitehorse for the location of the refinery. I think the chief one was that it was in the middle of the highway, and it was conceived that a refinery there located would serve the highway best, both for motor traffic and for the airfields along the highway. I think a second factor was the nearness to Skagway. It was only a hundred miles or 110 miles, or thereabouts, and the product line between Skagway or Whitehorse could run either way. So if you brought it in by water, you could take it up from Skagway to Whitehorse and then distribute it along the highway. And if you ran the refinery there, as you expected you would, you could deliver it down to Skagway by water.

But, of course, the crude pipe line from the Norman fields to Whitehorse was, I understood, some 200 miles shorter than it would be to Fairbanks.

Senator KILGORE. There is no disposition on my part there at that point to criticize the Skagway-Whitehorse-Watson Lake-and-Fairbanks products line. That is a separate part. I was just touching on the advisability of moving oil to Whitehorse or to Fairbanks or into Alaska territory at Big Delta or Northways or Tanana crossing.

Mr. PATTERSON. I suppose they thought there were advantages in having the refinery at the center point for the distribution system.

Senator KILGORE. And, of course, we do get much closer to our base at Fairbanks, and there are no mountain ranges to cross, according to the map; while there are some 10,000- to 13,000-foot mountain ranges, two of them, I think, to cross, on the trip from Whitehorse to Norman wells.

Mr. PATTERSON. There is no doubt of the fact that there were great construction problems on the crude pipe line from Norman Wells to Whitehorse, and that the building of the pipe line was an expensive and arduous proposition.

Senator KILGORE. The question I am raising now, Mr. Secretary, is this: The advisability of going ahead there with a 4-inch pipe line to get that small quantity of gasoline, conditions being as they are at present.

Mr. PATTERSON. They can easily add to that pipe line. Most of the work has been done for any new addition to be laid. You have your route complete, and I understand a road complete, so that you can add another pipe line there, if you like, another 4-inch or a 10-inch pipe line.

Senator KILGORE. In other words, the big item in building that pipe line is that access road, isn't it?

Mr. PATTERSON. I think so.

Senator KILGORE. Plus the pump stations?

Mr. PATTERSON. I think so; that is right.

Senator KILGORE. How long would it take to lay, for instance—

Mr. PATTERSON (interposing). I think the reason they wanted the 4-inch line, or one reason, was on account of the strategic materials.

The CHAIRMAN. Wasn't one reason they wanted the 4-inch line because they did not think there would be any more than that much oil there, and they have found more oil there? It has turned out all right, and I am glad it did. However, the reason they put in the 4-inch line there was that there was but enough oil to put in a 4-inch line.

Mr. PATTERSON. I also understoed that there was no difficulty in using 4-inch pipe. There was plenty of 4-inch pipe, and they did not have to have any made.

The CHAIRMAN. If we judge the record, they did not go into detail to find out exactly what they did have or what they wanted. That is what is fundamental and at the bottom of the whole thing. Excuse me; proceed, Senator Kilgore.

Mr. PATTERSON. Yes; it was a matter of very hasty planning; no doubt of that.

Senator KILGORE. And the building of that involves not only the building of that access road, but also two winter roads, one from Fort Nelson and one up by what we call the Stefansson Route, or Route A, I believe it is called. We followed two other access roads there, one of which was built by Army engineers and one on contract; isn't that right?

Mr. PATTERSON. I believe so.

Senator KILGORE. In order to get the pipe and material in.

Mr. PATTERSON. They were for the drilling operation.

Senator KILGORE. How many miles of access roads have we had to build in there, Mr. Secretary?

Mr. PATTERSON. I cannot say.

Senator KILGORE. I wonder if you could furnish those figures, including the two winter routes and the access road for the pipe lines?

Mr. PATTERSON. Yes, sir.

Senator KILGORE. Is it not a fact also that the product lines built along the Alcan Highway were laid far enough away that we are having to build access roads to service those lines, too?

Mr. PATTERSON. I think they parallel the highway.

Senator KILGORE. That is my understanding, but I was informed that we were having to build access roads to service them because they were just far enough off the highway so that the highway would not give service. I do not know; I am just asking for information.

Mr. PATTERSON. I will have to find that out. I do not know that.

Senator KILGORE. That is all I have.

The CHAIRMAN. Senator Ball.

Senator BALL. I have one question. Judge Patterson, have you any estimate of how much more this is going to cost to complete?

Mr. PATTERSON. My understanding is that the \$134,000,000 is complete. That is estimated. That is actual to date and estimated for the future.

Senator BALL. That is the total cost. I noticed in your statement you said that General Carter, in calling this conference in the spring of 1942 with the Imperial Oil people, had a representative of the Board of Economic Warfare sitting in on it. I wondered why you had the B. E. W. in and did not invite a representative of the Petroleum Administrator for War, who would seem to be more directly concerned with this particular problem.

Mr. PATTERSON. I grant that it might have been better if we had called in the Petroleum Coordinator for War. I understood the reason that was not done was because of the need of haste, and it was believed that his letter of May 28, 1941, from the President did not apply to oil except within the continental United States. That is an arguable point, but certainly under the Executive order making him Petroleum Administrator for War, which I think was dated December 2, 1942—that was afterward, of course—this kind of project would not have to be submitted to him, but whether it had to be submitted to him or not, it would have been better procedure to have done so.

Senator BALL. That is one very amazing statement that was made here yesterday by the Secretary, Mr. Ickes; that he first learned of this project as a result of a conversation had by his deputy, Mr. Davies, in a Washington hotel lobby, with a contractor.

Mr. PATTERSON. He heard of it pretty soon, because he and I were corresponding on it within a month.

Senator BALL. Do you not think, even at that time, Mr. Ickes had, as I think, demonstrated pretty well that he was on top of this job of petroleum and oil supply from the very beginning? The Army would have done well to call him in, especially since they apparently called in the Board of Economic Warfare.

Mr. PATTERSON. I have stated—

Senator BALL (interposing). That is next to his bailiwick, as Secretary of the Interior, in Alaska.

Mr. PATTERSON. I have said that I think it might have been better if he had been consulted. Of course, under the President's letter we would not have had to follow his views, because if the letter did apply

to this kind of a development—one outside the continental United States—it only called for consultation and not for approval. I have the highest regard for the Petroleum Administrator for War and for his whole staff.

Senator FERGUSON. Mr. Secretary, the second from the last paragraph of your statement reads:

I am fully convinced that what we have done so far is sound and that Canol will be a continuing benefit to our country in its peacetime economy, just as it is during this war.

I notice that some of your statements since you read this statement are in conflict with that. Isn't that true? You do not defend this, that it can be used in peacetime, do you?

Mr. PATTERSON. I believe that it will be a valuable asset in peacetime, but I do not mean that it was undertaken with that in view at all. I think my statement made clear that it was undertaken simply as a military measure.

Senator FERGUSON. But I have in mind this particular statement indicating that this is beneficial in peacetime. You are familiar with the fact that the contract terminates 6 months after the war and that every one of the wells, plus the casings, go to the oil company. How can that aid us in peacetime?

Mr. PATTERSON. If a big major oil field is uncovered there, it seems to me clear that the entire area of northwest Canada and Alaska are likely to be benefited by the discovery of a large oil field close to those areas.

Senator FERGUSON. Do you know why the limit was put on the exploration so that it only ran up to the Alaskan line?

Mr. PATTERSON. No; I don't.

Senator FERGUSON. Are you familiar with that fact?

Mr. AMBERG. May I answer that, Senator?

Senator FERGUSON. Yes.

Mr. AMBERG. We do not need any agreement with Canada for a right to drill in our own Territory of Alaska.

Senator FERGUSON. That is true, but have you explored any in Alaska?

Mr. PATTERSON. We have been undertaking a program for some months with the Secretary of the Interior on possible exploitation of oil properties in Alaska. They have not developed into anything yet. We have submitted programs.

Senator FERGUSON. As I understand, you claim no part in making up the judgment to do this project. You were not consulted prior to the directive by General Somervell.

Mr. PATTERSON. I have been trying to remember whether I knew of it in advance, or whether I was told of it a little later, and for the life of me I cannot remember which it was.

Senator FERGUSON. Do you know whether you did approve it prior to the directive by General Somervell?

Mr. PATTERSON. I did not in writing.

Senator FERGUSON. Do you know if you in any other way approved it?

Mr. PATTERSON. I say, I cannot recall now whether it was laid before me before it was undertaken or after.

Senator FERGUSON. Were you consulted in relation to it?

Mr. PATTERSON. General Somervell may know. I don't know.

Senator FERGUSON. Were you consulted about the highway prior to its erection or construction?

Mr. PATTERSON. I think I knew about the highway. I am not so clear about knowing in advance about the project for the oil. They were closely bound together, of course.

Senator FERGUSON. Do you know why a highway was erected between—

Mr. PATTERSON (interposing). The highway was erected first.

Senator FERGUSON (continuing). The Canadian airports, say from Fort St. John to Fort Nelson to Watson Lake, and no highway has been erected between Fairbanks and Ruby and Bethel and Nome in Alaska, and no method of supplying gas is made there?

Mr. PATTERSON. I will have to get the Corps of Engineers people on that, Senator. My impression is that the highway was originally conceived to service the airfields that were already in existence at those points and that were about to be enlarged and improved, and that it was to get supplies into those airfields and also to rescue fallen flyers who might fall in the wilds there and have no way of escape.

Senator FERGUSON. Isn't exactly the same thing true when you go from Fairbanks to Ruby and when you go over to Bethel? What is the difference?

Mr. PATTERSON. I suppose that the line from Dawson Creek to Fairbanks was thought of as a trunk route and—

Senator FERGUSON (interposing). I don't think it was.

Mr. PATTERSON (continuing). The others operating out from Fairbanks were branches at different points.

Senator FERGUSON. You are not familiar, then, with the reason that we have done nothing to supply the airfields in Alaska, but have done it to supply the airfields in Canada.

Mr. PATTERSON. Well, we have done it to supply the airfields at Fairbanks.

Senator FERGUSON. That is the one port.

Mr. PATTERSON. I would just have to turn you over to someone who knows the country better than I do, Senator.

Senator FERGUSON. I think that is all.

Mr. PATTERSON. General Pyron may be able to answer it.

Senator CONNALLY. May I ask one question? Mr. Secretary, referring to the questions asked you about the utility in peacetime, as I understand you, you are not defending this on the ground of peace economy, that it would have been valuable; in other words, that it of itself would bring in a return on the investment.

Mr. PATTERSON. I think that is an added prospect, but it was not at all in our minds when the job was undertaken.

Senator CONNALLY. Of course.

Mr. PATTERSON. It was purely and simply a military measure.

Senator CONNALLY. Your idea is that the mere fact of the development of this field, the fact that we have already got it, may result in the development of other resources even on our side of the Alaskan line.

Mr. PATTERSON. I think so.

Senator CONNALLY. And in the long picture, you think it will probably be to the advantage of the United States economically, in peace as well as in war; is that the idea?

Mr. PATTERSON. Yes, sir. Of course, our entire purpose, however, was a military one, and it had to do in the main with the saving of

transportation of petroleum and the development of local sources of supply in the areas of active military operations. We have done the same thing with many things besides petroleum, as I pointed out in my statement. We have tried in every way we could to get as many of the necessary items for our troops near where they are. I think the Senators who went around the world were surely impressed with the long areas and long distances we have to carry supplies. I know I was when I went down to the South Pacific and Southwest Pacific.

Senator CONNALLY. Along that same line, is it not true that the Army and Navy both have established bases in many foreign countries which were only for war purposes, many of which will either be junked or disposed of after the war, which were purely for temporary military use?

Mr. PATTERSON. Take Persia, those big docks and all those railroad facilities. That is nothing but a military measure to get lend-lease supplies up to Russia; well worth while, an indispensable thing to have done, but I don't think it has very much future economic value, and certainly very little to us.

Senator CONNALLY. I understand they have a big base on the western side of the Red Sea, along there somewhere. I forget what country it is in.

Mr. PATTERSON. Eritrea. That is almost valueless already on account of the changing of the front of the war.

Senator CONNALLY. That was formerly Italian territory; didn't belong to us at all. Yet we established a big base there, which no doubt after the war will be practically useless or junked.

Mr. PATTERSON. Almost useless already.

Senator CONNALLY. And it was done for military use, for the war.

Mr. PATTERSON. Right.

Senator CONNALLY. It involved a lot of waste of course. War is waste; all of war is waste. That is all.

Senator FERGUSON. Mr. Secretary, were you consulted by the State Department as to the contracts relative to this oil?

Mr. PATTERSON. No, sir.

Senator FERGUSON. Have you reviewed those contracts?

Mr. PATTERSON. Yes.

Senator FERGUSON. Do I understand that you have now started negotiations to see whether or not they can't be changed, from your statement here?

Mr. PATTERSON. Yes, sir.

Senator FERGUSON. When did you start that negotiation?

Mr. PATTERSON. Within the last 2 weeks.

Senator FERGUSON. You are satisfied, then, that something should be done and that there should be cooperation between Canada and the Government here in relation to these contracts.

Mr. PATTERSON. Yes, sir; I think on a long-range basis. These contracts we have now are entirely on a short-range basis.

Mr. AMBERG. I think Judge Patterson was not speaking of the State Department's being in on the contracts.

Senator FERGUSON. Yes.

Mr. AMBERG. Of course, the State Department did enter into the international agreements at the start.

Senator FERGUSON. Yes.

Mr. PATTERSON. Notes of agreement or something like that.

Senator FERGUSON. We have contracts as well as international agreements on the project.

Mr. AMBERG. Yes.

Senator KILGORE. I was interested in Senator Connally's statement and also in yours, Mr. Secretary, with reference to these bases. We are not going ahead, spending money on that base now, where the value has ceased, are we?

Mr. PATTERSON. No; I think not.

Senator KILGORE. That is the point I was making.

Mr. PATTERSON. That was important when Rommel was almost up to the Nile—

Senator KILGORE (interposing). I realize that.

Mr. PATTERSON. But it has very little importance now. I think we are out of it altogether.

Senator KILGORE. And this was important, also, according to the strategy, when there was much more threat to Alaska existing in the Aleutians than there now exists; isn't that right?

Mr. PATTERSON. I think it was more urgent then.

Senator KILGORE. Certainly.

Mr. PATTERSON. But the Joint Chiefs of Staff said just last month that it should be completed as a military measure.

Senator KILGORE. All right. The point I want to get at is this: At the time of its inception, were you or was anybody on your staff furnished an estimated time before products could be procured from the refinery?

Mr. PATTERSON. I don't know at what time those estimates came in, Senator, but I have seen estimates from time to time. They have been postponed quite a bit.

Senator KILGORE. I know. What was the estimate originally, under the original conception, of when you could get refined products?

Mr. PATTERSON. I prefer to leave that to General Pyron. My impression is the spring of '43, but I am not sure.

Mr. FULTON. Forty-two.

The CHAIRMAN. Mr. Secretary, there has been a great deal of conversation here—excuse me, Senator.

Mr. PATTERSON. I think it was the spring of '43, but you ask General Pyron that.

Mr. FULTON. Mr. Secretary, Dean Graham's memorandum gives the date as the fall of '42.

Mr. PATTERSON. Is it?

Senator KILGORE. What occasioned the delay in '43, then?

Mr. PATTERSON. There was some delay on the refinery; I know that. They were picking up a used refinery. Mr. Davies has had up with me from time to time the fitting of this program in on a time basis with his own 100-octane gas program in the United States, and there have been certain delays on that account, giving precedence to one of his programs for the time being. General Pyron can tell you more about that, too, than I can, but I think the main one has been in the construction of the refinery.

The CHAIRMAN. Mr. Secretary, I started to say a minute ago that war is waste; it is destruction, but isn't the theory of the strategists that the winner of the war is the man who uses the economy of force?

Mr. PATTERSON. Yes.

The CHAIRMAN. Isn't that a fundamental principle of war, and is there any more reason why economy of dollars shouldn't be used in the same way?

Mr. PATTERSON. I think you expressed it here well by "economy of manpower and material."

The CHAIRMAN. That is right. That is what it all amounts to. That is exactly what it amounts to.

Mr. PATTERSON. But I take the decision of the Joint Chiefs of Staff on that. If they say—

The CHAIRMAN (interposing). The decision of the Joint Chiefs of Staff was not made until after the fact. They were not consulted before.

Mr. PATTERSON. That is true, Senator, but if they were to tell me today to drop everything else and press this project as being the most important for their plans, that is what I would do.

The CHAIRMAN. Naturally. I agree with you, and that is what you should do.

Mr. PATTERSON. Yes, sir.

The CHAIRMAN. We will all agree to that, but I think the Joint Chiefs of Staff in this case are mistaken, and I don't think they had all the facts when they made the decision.

Did you have another question, Senator?

Senator KILGORE. No.

Senator CONNALLY. Let me ask one right there.

Judge Patterson, isn't the fact that the Joint Chiefs of Staff approved this a month ago, after all this so-called waste, and all that, just as valuable as if they had approved it before it started?

Mr. PATTERSON. Yes, sir. I can't say, of course—I wouldn't say they were mistaken. They have military plans that I know nothing of all over the world, for that matter. They can estimate the importance of a project.

Mr. FULTON. Mr. Under Secretary, you said a moment ago that it was because of some difficulties in getting a refinery acceptable to the Petroleum Administrator that you are not now getting oil. Did you mean that the refinery is what is keeping you from getting oil today?

Mr. PATTERSON. No; because the pipe line itself isn't done; but I think the refinery will be the final element in the system to be finished.

Mr. FULTON. When will your pipe line be finished?

Mr. PATTERSON. I think I said there in February of 1944; the refinery by spring. That is my understanding.

Mr. FULTON. Is it the position of the War Department that there was a delay by reason of the Administrator's action with respect to this Texas refinery, which he thought could better be used here than in Canada?

Mr. PATTERSON. I don't know. I know that there was some time when we were deciding between two refineries, one in Tyler and one in Corpus Christi, and we had discussions all that time with the Petroleum Administrator's office about which one of these two refineries should be the refinery to be dismantled and taken up there.

Then I have had discussions from time to time with Mr. Davies about some particular thing on the 100-octane gas facilities, where he said that some order placed for that refinery up in Whitehorse was interfering with some construction that he had for 100-octane gaso-

line down here, and where I gave directions to our people to iron that out so as not to interfere with Mr. Davies.

Mr. FULTON. Then I take it there was no intention to indicate that Mr. Ickes in any way delayed this project by the refinery.

Mr. PATTERSON. I don't think so.

Mr. FULTON. With respect to economy of materials and man-hours, was it your understanding that General Streett ever considered that?

Mr. PATTERSON. Economy of?

Mr. FULTON. Man-hours.

Mr. PATTERSON. You mean put in here as against somewhere else?

Mr. FULTON. The various possibilities of getting the same result, gasoline along this highway.

Mr. PATTERSON. I don't know whether he did or not.

Mr. FULTON. I might call your attention to his testimony in the private hearings with the committee, but first, Mr. Secretary, in preparing this statement, did those who assisted you have available the information that they had obtained in connection with their work with the committee during the last month or two?

Mr. PATTERSON. I don't know what they had. There were three or four of them who assisted me in making up that statement.

Mr. FULTON. Did Mr. Amberg?

Mr. PATTERSON. Yes; he is one.

Mr. FULTON. Mr. Amberg, you are familiar—

Mr. PATTERSON (interposing). General Pyron is one.

Mr. FULTON. With General Streett's testimony?

Mr. AMBERG. I didn't hear General Streett's testimony.

Mr. FULTON. I see. You had a copy of it, did you not?

Mr. AMBERG. I saw him a few moments before he came up here.

Mr. FULTON. Did you have a copy of his testimony after he came up?

Mr. AMBERG. I think so; yes. We got it.

Mr. FULTON. General Streett specifically testified before the committee, and I quote from page 376 of your record of his testimony, "As a matter of fact, the impression that I was given was that it could be done very shortly."¹ Were you aware, Mr. Patterson, that General Streett, in giving any advice that he did give on the project, was acting under the assumption that it could be finished in a few months?

Mr. PATTERSON. I don't know what went on in General Streett's mind; no.

Mr. FULTON. But it was, of course, stated by dates in the only memorandum prepared on this that this project was expected to be done in a few months, was it not?

Mr. PATTERSON. I never had that impression myself.

Mr. FULTON. Did you read that memorandum?

Mr. PATTERSON. Which one do you mean?

Mr. FULTON. The only memorandum that was ever prepared on this project, the one General Somervell acted on.²

Mr. PATTERSON. Colonel Graham's?

Mr. FULTON. Yes.

Mr. PATTERSON. I have seen it, yes.

Mr. FULTON. Did it not so state?

Mr. PATTERSON. I don't remember. I don't remember its contents at all.

¹ Supra, p. 9497.

² Exhibit No. 1095, appendix, p. 9842.

Mr. FULTON. General Streett also testified, on page 373, that the time element was not discussed.¹ Wouldn't you think——

Senator CONNALLY (interposing). That doesn't jibe with his other statement.

Mr. PATTERSON. Is this part of Streett's testimony?

Mr. FULTON. Yes. It doesn't very well, Senator Connally, but that is one of the difficulties we have with certain generals who testify. I quote General Streett: "As a matter of fact, that point was not brought up at the discussion." The question was: "Was the question of time necessary for construction to make the supply available taken into consideration?"

Mr. PATTERSON. I can't say. I do again say, however, that just last month the Joint Chiefs of Staff said they still wanted it pushed to completion, and that was on the situation that they had just in October.

Senator CONNALLY. Mr. Chairman, may I say that my observation about the contradiction in General Streett's testimony was based on the theory that his testimony apparently is trying to be used as an impeachment of this witness and that General Streett's——

The CHAIRMAN (interposing). Oh, no; there is not that intention.

Senator CONNALLY. I don't mean impeach in the sense of proving he is not truthful, but it is in derogation, at least. That is a better word that the newspapermen might approve of.

The CHAIRMAN. I will let you lawyers argue that.

Senator CONNALLY. Just a moment. Let me finish what I am saying, and then I will be subject to interrogation. The testimony of General Streett was being quoted in derogation of the attitude of the Under Secretary. In one breath General Streett says that the time element was represented to him that it would be done in a few months. In the next statement he quotes the same witness as saying that the time element was not mentioned, so I do not think there is much derogation in anybody's testimony.

Mr. PATTERSON. I was not present when he testified, and I have never read his testimony. I have no idea what he said.

Mr. FULTON. My only purpose in referring to General Streett was the fact that he was the only General Staff officer who had anything whatever to do with this project before it was accepted and was referred to by you, Mr. Under Secretary, as indicating that the staff had given consideration to this and knew it.

Mr. PATTERSON. Right.

Mr. FULTON. Would you regard any consideration that either did not take the time into consideration, or which reached such an apparently ridiculous result as 2 or 3 months for such a project as this?

Mr. PATTERSON. Ridiculous result? What do you mean?

Mr. FULTON. Ridiculous to build this project in 2 or 3 months.

Mr. PATTERSON. Did he say he thought it would be built in 2 or 3 months?

Senator CONNALLY. No.

Mr. FULTON. The impression that I was given was that it could be done very shortly, his testimony being on page 376.²

Mr. PATTERSON. I do not know what he means by shortly. Of course, no project of this character could possibly be finished in 2 or 3 months, but I don't think he said that.

¹ Supra, p. 9493.

² Supra, p. 9497.

Mr. FULTON. With respect to General Streett again, was it your impression that he ever made any opinion at all on the question of whether the project was worth the cost?

Mr. PATTERSON. You mean in materials?

Mr. FULTON. In any sense; either in dollars, which is never anything but cost in manpower, materials, plus waste; is that not correct?

Mr. PATTERSON. No. You cannot measure costs in materials and manpower purely in dollars. It depends upon how critical the materials are and what the shortage of manpower in the particular place may be. It is a fair measure, but it is not infallible.

Mr. FULTON. Do you think that General Streett considered the cost in any terms?

Mr. PATTERSON. I do not know what he considered, Mr. Fulton. You have his testimony.

Mr. FULTON. Well, his testimony was, "That was a point that I was not called upon to answer." His testimony further was that this was a very informal meeting.

Senator CONNALLY. Is it not true—

Mr. PATTERSON. What of that?

Senator CONNALLY. Is it not true, Judge, that General Streett was looking at it from a military standpoint purely?

Mr. PATTERSON. Military operations, particularly air. He is an officer of the air forces.

Senator CONNALLY. As such he thought it was a worthy project. That is the way I get it.

Mr. PATTERSON. Yes; that was my understanding. I do not know what his testimony is.

Mr. FULTON. The testimony of Colonel Graham with respect to why General Streett was there was to tell them whether there was any necessity for a high-test gasoline along that route. Of course, any asset, whether it is good, bad or indifferent, is valuable if you can get it without too much cost, isn't it, Mr. Secretary?

Mr. PATTERSON. Yes. I would say that the views of General Streett on the air strategy in that area, and the views of General Pyron on the supply of the planned operations, were both entitled to great weight.

Senator KILGORE. May I interrupt your questioning right here? The thing that has puzzled me all the way through is that Colonel Graham says this morning that in that meeting they were considering truck gasoline. General Streett was in there considering aviation gasoline. It seems to me there was not what we would call, in legal phraseology, a meeting of the minds on the mission of that meeting.

Mr. PATTERSON. General Pyron is our over-all oil man for all kinds of petroleum, and I think he was there. I will leave that matter with him.

The CHAIRMAN. We are going to hear General Pyron.

Mr. PATTERSON. I was not there.

Mr. FULTON. With respect to the question which was asked of General Streett, and his actual information and the amount of information he had, may I call your attention to this question and answer.¹

Question to General Streett:

What were you told about the thing, General? It seems to me you did not know how much material was involved. You couldn't know what the time element was. You didn't know how much gasoline would be produced. You errone-

¹ Supra, p. 9495.

ously thought the materials were all going up the island waterways route rather than through the sea. Were you given enough information for you to be able to form any judgment on the project whatsoever?

General Streett's answer:

None, except was there a requirement, would it be a good thing to have it, and locally.

Have you any reason to believe that is not the correct quotation from General Streett?

Mr. PATTERSON. None at all. I assume that he said that.

Mr. FULTON. Now, General Streett also said, "I wasn't called in to pass upon the cost. The engineering difficulties, the shipping difficulties, or anything like that."¹

Mr. PATTERSON. That would be true, of course.

Mr. FULTON. Who was?

Mr. PATTERSON. General Pyron and the others would contribute that. General Streett certainly, I believe, certainly would have no experience in the construction cost of a project like this or in the time necessary to complete it. I would not assume he would.

Mr. FULTON. We have already had General Pyron's testimony privately. He did not take the position—and are you under the impression that he does take the position—that he estimated those costs and difficulties?²

Mr. PATTERSON. I do not think anybody could estimate the cost. That would have required, I think, a complete engineering survey and would have taken a long time to do. I do not think anybody could have done that.

Mr. FULTON. At least no one tried.

Mr. PATTERSON. I don't think they did, not before undertaking the work.

Mr. FULTON. You are familiar, I take it, Mr. Under Secretary, with General Robins' statement on behalf of the Chief of Engineers when he received this directive of General Somervell to the effect that he thought they ought to use barges and could take 10 times the gasoline up in one-tenth the time?

Mr. PATTERSON. No; I did not know that that was General Robins' opinion.

Mr. FULTON. Mr. Amberg, I believe, has a copy of General Robins' testimony where he agreed that the memorandum from the Imperial Oil Co. correctly states his initial views.³

Mr. AMBERG. There is no doubt about it. It has nothing to do with the question of whether we should have resources on the scene or should get them from dwindling United States resources through a dangerous sea route.

Senator CONNALLY. The fact of this development didn't exclude bringing up additional oil supplies by steamer or tanker?

Mr. PATTERSON. No, it didn't, and of course we have brought it up there to date.

Senator CONNALLY. It doesn't exclude it at all? If you needed more, you could bring it up in the way these gentlemen suggest?

Mr. PATTERSON. Yes, sir.

¹ Supra, p. 9496.

² Supra, pp. 9374-9379, 9502-9526.

³ Supra, p. 9481.

Mr. FULTON. Well, Mr. Under Secretary, your great need for this oil product would be during the period when our Navy was weak and before we got it built up, would it not? In other words, the years 1942 and 1943, rather than the year '44 when you will have the project, and thereafter?

Mr. PATTERSON. Well, would you expect us in 1942 to be sure that the sea would be safe in 1944 or 1945? We don't know the course that this war is going to take. We don't know it today. You have to do your best to guard against all future contingencies with what you have at hand at the time. We were faced with a critical condition. Everybody knows that in the spring of 1942 the control of the Pacific was not ours. The safety of shipping on the way to Alaska was by no means clear, and the Japanese capability for attack on Alaska was well known. General Marshall pointed that out in his report. We had to take proper measure we could then to use every resource we had to try to defend Alaska.

Mr. FULTON. Mr. Under Secretary, let's explore the detail on that. This provision at Skagway is rather far down in the Alaskan area, is it not?

Mr. PATTERSON. Yes; way, way inside the Aleutians, that is right.

Mr. FULTON. If our \$30,000 base at Sitka for which we paid more than the cost of Alaska, I believe, was a real base, would that defend Skagway or was that base not so very valuable?

Mr. PATTERSON. Well, you have the whole route up from Seattle by getting up to Prince Rupert and then getting in the inland waterways. That is not a wholly safe route, and moreover—

Mr. FULTON (interposing). You have the railroad to Prince Rupert.

Mr. PATTERSON. And, moreover, it takes shipping. I don't think there can be any question of the advantage of local sources of supply over sources of supply in this country, with long shipping routes involved, none at all.

Mr. FULTON. Irrespective of the cost of the material and manpower cost to obtain your local source, irrespective of the 55,000 tons of shipping that you had to use to get your materials up there to build this refinery?

Mr. PATTERSON. If the people in charge of the military strategy of the war say that they want it developed locally, then I say irrespective of the cost; yes, sir.

Mr. FULTON. Who said that?

Mr. PATTERSON. If they want it developed locally.

Mr. FULTON. Who said it?

Mr. PATTERSON. What is the use of going back to that again?

Mr. FULTON. The man who didn't know and didn't have any information with which to know, according to his own testimony?

Mr. PATTERSON. Yes; and how about in October this year?

Mr. FULTON. I am asking—

Mr. PATTERSON (interposing). Do the Joint Chiefs of Staff know anything about it?

APPRAISAL OF THE PROJECT

Senator FERGUSON. Mr. Secretary, you bring up several times the Joint Chiefs of Staff in October approving this. Has there been a

memorandum submitted to the Joint Chiefs of Staff giving them the facts?

Mr. PATTERSON. I believe that they took——

Senator FERGUSON (interposing). And if there is, could the committee have that?

Mr. PATTERSON. I don't know about that, but they took extensive testimony, as I understand it.

Senator FERGUSON. Did you submit the testimony that had been taken by the committee?

Mr. PATTERSON. I have never seen it.

Senator FERGUSON. Well, your office has it.

Mr. PATTERSON. I never attended the Joint Chiefs of Staff hearing at all.

Senator FERGUSON. But can you tell us?

Mr. PATTERSON. All I know is the result.

Senator FERGUSON. You don't know upon what they acted?

Mr. PATTERSON. I know that it was on a program for consideration and it was no snap decision.

Mr. AMBERG. I believe they had testimony or data from the War Petroleum Administrator's office as well as the Bureau of the Budget and from various people in the Army and had access to anything that this committee has had access to.

Mr. FULTON. Including the opinion of the Standard Oil of California and the architect engineer of this project?

Mr. AMBERG. I don't know about that. I have never seen their proceedings, and the Joint Chiefs of Staff matters are extremely secret.

Mr. FULTON. Now, the question that I thought Mr. Patterson might have been interested in—would you consider the opinion of the Standard Oil of California which you hired as an expert company on this project of value?

Mr. PATTERSON. On some phases of it, yes.

Mr. FULTON. Are you familiar with the letter which they wrote to the Secretary of War on June 4, 1942, immediately after they had made a survey of this, in which they recommended that the Canol project be abandoned and that there be substituted for it a project which they said would be better and cheaper?

Mr. PATTERSON. No. What was the project they recommended?

Mr. FULTON. I might read you from their statement [reading from Exhibit No. 1141]:

Inasmuch as our outpost in Alaska was attacked yesterday by the enemy, we feel it incumbent upon this company in particular

that is the Standard Oil of California—

and the oil industry in general to do everything possible to devise ways and means to get supplies to our fighting forces at the earliest possible date. With this in mind, a careful study has been made by our own organization, in conjunction with the contractors, Bechtel-Price-Callahan, represented by Mr. Bechtel, and the architect engineers, J. Gordon Turnbull and Sverdrop and Parcel, as represented by Mr. Turnbull, and we respectfully submit the following plan for your consideration: That adequate bomb-proof storage, say, 100,000 barrels, be built at or near Prince Rupert, Canada; probably the best location would be in the vicinity of Hazelton, which is approximately 150 miles inland from Prince Rupert. The advantage of a base storage at this point would be that petroleum products could be delivered to it from California via water or from the oil fields in the Provinces of Alberta and Saskatchewan, Canada, via rail, or from the Montana area in the United States via rail; in other words, a base storage would then be located at both a railhead and a port of entry from the

Pacific. From this base storage it is then proposed to construct a pipe line to intersect the proposed highway now being constructed from Edmonton to Whitehorse, near Lake Teslin. The route of the pipe line would then follow the proposed highway on north into Whitehorse where terminal storage could be built, also intermediate storage could be built between the base storage and Whitehorse. Further, it would be possible to run feeder pipe lines out from Whitehorse or from intermediate points to any air bases that might be desired. The advantages of such a plan would be:

1. That it could be constructed and in operation in 120 days or less.

And I interpose that our expected operation is '44.

2. That aviation gasoline could be distributed from the base storage to or near projected airports by pipe line far enough inland so that no interference would be anticipated from a sea attack.

3. That supplies could be moved into base storage to the farthest north point accessible by both rail and water.

4. If the present contemplated Norman-Whitehorse project is carried to completion, each project would supplement the other in moving supplies to needed points and, at the same time, by going ahead with this recommended project these supplies would be made available from 6 to 9 months sooner and in as much greater quantity as may be needed.

We are simply putting before you, as consultants, a plan which we believe will mean considerable in time, and it is our understanding that time is the essence of this entire project. For your convenience, a map outlining these projects is enclosed.

(The letter referred to was marked "Exhibit No. 1141" and is included in the appendix on p. 9889.)

Mr. PATTERSON. Of course, that is a transportation and storage plan with feeder pipe lines. Feeder pipe lines I suppose are substantially the same as the distribution pipe lines we have now.

Mr. FULTON. Yes; as they propose—

Mr. PATTERSON (interposing). Out of Whitehorse. I don't know whether that proposal, Mr. Fulton, is in addition to the Norman field and refinery project or whether it is in substitution of it.

Mr. FULTON. Well, any project could be in addition, but they propose it as a means of getting as much gasoline as you need, not whatever you could produce from your Norman wells, much sooner. Was that project one that you regarded as important to follow through and discuss when it was recommended by the three different groups which the War Department had hired to expert this situation?

Mr. PATTERSON. My understanding is that they did build some storage at Skagway, and of course the product line from Skagway to Whitehorse is in operation. Whether they took it from that plan or from some other plan I don't know. We do have, as you know, our present distribution up there by transportation and storage.

Mr. FULTON. In other words, you have spent \$35,000,000 of the \$135,000,000, or you propose to spend that much, to develop a project which could have gone on without the Norman project at all and would have given you your distribution lines along your highway, would have given you your oil and tanks dispersed widely—

Mr. PATTERSON (interposing). It would have given it to you. Then the source would have been by shipping to Skagway.

Mr. FULTON. Would you regard the opinion of the Army's oil expert company, the Standard Oil of California, the opinion of the Army's selected architects, and of the contractor as being something which should have been studied quickly and determined upon one way or the other, either to be accurate or inaccurate?

Mr. PATTERSON. I agree with you that their opinions ought to be given weight; yes.

Mr. FULTON. How much study was given to that, and by whom?

Mr. PATTERSON. You would have to ask General Pyron that.

Mr. FULTON. You speak of the Joint General Staff or Joint Chiefs of Staff as having made this determination. I ask you if this opinion of the contractor, architect, and Standard Oil of California was before them.

Mr. PATTERSON. I don't know.

Mr. AMBERG. The General Staff was considering it now, not what might have been done in June 1942.

Mr. FULTON. Well, in connection with that, Mr. Amberg, I rather thought that that point might be raised by the War Department, so I have before me another letter of Standard Oil of California, which, although it is not dated in November, it is not dated in 1942, it is April 1, 1943, on page 2, says:

Since this plan was proposed we know of no developments which would lead us to change our opinion as to its desirability over the refinery and crude pipe line.

(The letter referred to was marked "Exhibit No. 1142" and is included in the appendix on p. 9890.)

Mr. FULTON. Is there any suggestion that the people who built this pipe line and this project, the people who designed it, the oil experts hired by the Army, do not even today have the same opinion with respect to time elements, money?

Mr. PATTERSON. I don't know.

Mr. FULTON. Materials?

Mr. PATTERSON. I don't know what their present-day opinion is at all.

Mr. FULTON. Have they been asked?

Mr. PATTERSON. Not by me.

Mr. FULTON. There is a statement here about Canol being something we would be proud of, that it was a bold and successful undertaking. If it was good would you advocate a hundred more like it?

Mr. PATTERSON. You don't need a hundred more like it.

Mr. FULTON. Don't we need—

Mr. PATTERSON (interposing). If I could find oil in New Zealand at that cost, yes, I would advocate it.

Mr. FULTON. May we assume—

Mr. PATTERSON (interposing). And I can tell you some other areas also where it would be cheap no matter what the price.

Mr. FULTON. Should we assume that there are other Canol projects in the War Department decided upon in this way?

Mr. PATTERSON. I know of none under way. I know of some oil projects, yes.

Mr. FULTON. Decided upon in the way in which this one was and with the consultation that this one had?

Mr. PATTERSON. If there was the need of haste in it, yes.

Mr. FULTON. Now with respect to the need of haste, did you hear Dean Graham's testimony that he had been working on this for 3 or 4 months?

Mr. PATTERSON. No; I did not hear him say that.

Mr. FULTON. Why was it necessary to decide this in 1 day by General Somervell on a 1-page memorandum after one conference in which the only experts who had knowledge expressed considerable doubt as to whether they could get oil?

Mr. PATTERSON. I think what Dean Graham was referring to was probably his work on the highway.

Mr. FULTON. No.

Mr. PATTERSON. I don't think he worked any 3 or 4 months on the oil matter, although he may have, I don't know; he would know.

Mr. FULTON. That leaves us with the possibility that during that 3 or 4 months when they were talking about the highway they did nothing; in which case I would like to ask why nothing was done during 3 months and why so great a necessity for doing something overnight on the 29th of April.

Mr. PATTERSON. You will have to ask someone who took part in the deliberations. I didn't.

Senator KILGORE. Could I ask a question?

The CHAIRMAN. Certainly.

Senator KILGORE. When is the expected date of the first products from the Canol project? So far we have been transporting all our needs.

Mr. PATTERSON. Either by air or water.

Senator KILGORE. Air or water.

Mr. PATTERSON. That is right.

Senator KILGORE. What is the expected date on that if all plans go through?

Mr. PATTERSON. I understand the spring of—

Senator KILGORE (interposing). As far as getting some oil.

Mr. PATTERSON. I understand the spring of '44.

Senator KILGORE. The spring of '44?

Mr. PATTERSON. Yes, sir.

Senator KILGORE. Has anybody ever figured up the amount of gasoline that has been expended in transportation, both air and truck and water, of this material in there when you are talking about the drainage of our own natural supplies, as compared with how long it would take us to recoup that to our natural supplies, 3,000 barrels a day?

Mr. PATTERSON. That would be pretty hard to do.

Senator KILGORE. I should think it would, but a lot of this material has been flowing into those Norman wells; hasn't it?

Mr. PATTERSON. My impression is most of it went down the river.

Senator KILGORE. Quite a lot of it went down into Great Slave Lake; some of it did. At any rate, I have been informed that a lot of material has been flown in.

Mr. PATTERSON. I suppose so.

Mr. FULTON. In connection with that, we were informed that there were some 130,000 tons of materials that had to be transported for this project, Mr. Under Secretary.

Mr. PATTERSON. The one at the fields or at the refinery?

Mr. FULTON. The entire Canol project.

Mr. PATTERSON. I wouldn't be surprised.

Mr. FULTON. If we had not used 130,000 tons of transportation facilities for this project, how much could we have transported to Alaska in the time when the Japs were in the Alaskan region?

Mr. PATTERSON. Well, it all depends on what kind of tonnage it is. Barge tonnage is one thing and tanker tonnage and dry cargo tonnage are different things. I couldn't say.

Mr. FULTON. You spent \$25,000,000 on this route D which goes up to the Mackenzie River. You built accessory roads for tractors. You also built up a barge-facility system. If you could transport tonnage over that 25,000 tons, couldn't you similarly transport anything else over that up into the Fairbanks, Alaska, region, and didn't you by using this for that purpose thereby deprive yourself, logistically speaking, and only from a military standpoint, of transportation that you could have used for other purposes?

Mr. PATTERSON. I don't think so.

Mr. FULTON. I also ask you with respect to the 55,000 tons of shipping transportation and the 25,000 tons that must have been used for that before, whether you couldn't have used those 80,000 tons of shipping that went up to Skagway to transport materials to Alaska for the alleviation of our needs there?

Mr. PATTERSON. Very likely. You can never tell what course the war is going to take. You don't know in 1942 whether your shipping route to Alaska is going to improve or get worse. You don't know the regularity of it or the continuity of it. I still say, Mr. Fulton, that it is better, from the point of view of military logistics, to be self-sustaining on the spot than to depend upon shipping from more remote points.

Mr. FULTON. Well, you say—

Mr. PATTERSON (interposing). Where vital needs and especially needs as vital as ours exist.

Mr. FULTON. The thing that I was discussing relates to your particular statement, "if shipping needs improve," then of course the need for the project becomes relatively much less. If, on the other hand—

Mr. PATTERSON (interposing). Less urgent; yes.

Mr. FULTON. If shipping needs do not improve then you haven't got anything at all; you haven't got a Canol project and you can't finish it, and you have lost 55,000 tons, plus 25,000 tons of transportation facilities which could have gone to Alaska; haven't you?

Mr. PATTERSON. Could have gone where?

Mr. FULTON. To Alaska for the defense of the area.

Mr. PATTERSON. I don't know what figures you mean—25,000 tons? Where did that go?

Mr. FULTON. Well, there are 80,000 tons of shipping transportation in accordance with these figures that have been given to us that went up into the Skagway region.

Mr. PATTERSON. By barge or what?

Mr. FULTON. By ships.

Mr. PATTERSON. You mean dry cargo?

Mr. FULTON. Some dry cargo, mostly dry cargo.

Mr. PATTERSON. And some barge?

Mr. FULTON. There may have been some barge. I am talking about War Department charts which aren't too clear. I mean if your shipping transportation—

Mr. PATTERSON (interposing). I'll let that one pass.

Mr. FULTON. Wouldn't you want the 80,000 tons of shipping for something you could use rather than for an uncompleted refinery project?

Mr. PATTERSON. No. I would say that the advantage of having your local supply right there—

Mr. FULTON (interposing). You wouldn't have it.

Mr. PATTERSON. And getting your materials there when you can and when the route is clear, you have then your local supply, it is an obvious advantage.

Mr. FULTON. But, Mr. Under Secretary, you can't get—

Mr. PATTERSON (interposing). If we could find oil in New Zealand we might take shipping for the time being to construct drilling and refining facilities there. That would be better to do that, using the shipping as it is, than to steadily carry your product over there.

Mr. FULTON. But you can't get a drop of gasoline with your 80,000 tons of materials until you have a completed pipe line and a completed refinery, could you?

Mr. PATTERSON. We cannot get local refined products until we have the pipe line and the refinery, that is right, clearly.

Mr. FULTON. And then, of course, there is still a further and fundamental question: If we couldn't take an occasional tanker and slip it through the fog of the Inland Passage with such protection as we could give it with our long-range support, how could we feed the troops in Alaska, how could we supply them, how could we maintain any kind of an Army flank several thousand miles farther out?

Mr. PATTERSON. Again I say the more you can give relief to the shipping requirements up there the better off you are, and that is obvious.

Senator KILGORE. I want to go back to a statement about New Zealand development. What is the difference in turn-around time between shipments into Australia and New Zealand and shipments into Skagway?

Mr. PATTERSON. Very considerable, of course.

Senator KILGORE. Very considerable?

Mr. PATTERSON. Yes, indeed.

Senator KILGORE. About a 4 months' turn-around down there, isn't it?

Mr. PATTERSON. Yes, indeed. If we could have found oil in New Zealand, it would have been far more valuable than to find it up there.

Senator KILGORE. That is right. It would have been four times as valuable in New Zealand as it would up there.

Mr. PATTERSON. Fully.

Mr. FULTON. Mr. Under Secretary, the Secretary of the Interior was here yesterday, and he stated that information on this project was refused to him on the ground that it was secret. Also a representative of the War Production Board made a similar statement. Was any such refusal made?

Mr. PATTERSON. I don't recall any. I had a good many of the transactions with the Secretary of the Interior. They were put on the ground of military strategy, not on the ground of military secrecy, with them. I can point out the difference. Of course, I would just as soon convey any piece of military information I knew to the Secretary

of the Interior. The point was this: That under his order of December 2, 1942, oil operations involving military strategy were under the Joint Chiefs of Staff, and not under the Petroleum Administrator. If the words "military strategy" were used, I would say it had reference to that paragraph of the order of December 2, 1942, and not to anything about military secrecy. If it was used with him, it was not used by me, and I had most of the transactions with him.

Mr. FULTON. Then why was there no a discussion—

Mr. PATTERSON (interposing). The War Production Board, so far as they are concerned, didn't need to pass on this. They didn't have any agency in April 1942 equipped to pass on this.

Mr. FULTON. No; I am talking—

Mr. PATTERSON (interposing). Their Facilities Board was not created until around November 1942.

Mr. FULTON. I am talking about the attempts of that Facilities Board to get some information on which they could make some determination as to whether they should hold back our other American war program in order to determine whether they should hold that back or allow this one to proceed. Are they correct in saying they were refused information?

Senator FERGUSON. I know that first hand, Mr. Fulton, because I had talks with Mr. Searls of the War Production Board about it. I think I exchanged correspondence with him. The War Production Board itself never asked us to submit this to their Requirements Committee or to their Facilities Board, so far as I know.

Mr. FULTON. But they did ask you—

Mr. PATTERSON (interposing). Mr. Fred Searls made the statement to me that he thought—he made the statement to Mr. Nelson, that he thought these projects ought to be reviewed, both the Alcan Highway and the Canol, by either the Requirements Committee or the Facilities Board, and I think it was the Facilities Board, mainly.

Mr. FULTON. Was that done?

Mr. PATTERSON. He made that statement. The Facilities Board never asked us for it that I know of. Mr. Nelson certainly never asked me for it.

Mr. FULTON. Mr. Searls wrote you a letter, did he not?

Mr. PATTERSON. Oh, yes; and I answered the letter.

Mr. FULTON. It was read here yesterday.

Mr. PATTERSON. Two or three letters.

Mr. FULTON. What I was leading up to was this—

Mr. PATTERSON (interposing). It was very plain, however, that this undertaking, I think I told him, no more than a railroad in New Guinea or a highway in the Solomons, needed to come before the Facilities Board.

Mr. FULTON. In other words, neither the Petroleum Administrator nor the War Production Board was to be allowed, even in a friendly way, to discuss the facts of this project with the Army.

Mr. PATTERSON. Oh, we discussed it many times with the Petroleum Administrator for War on various details, and some of his suggestions we adopted.

Mr. FULTON. Could we have the detail on that, because his testimony was to the contrary?

Mr. PATTERSON. Yes; I can find it for you. I can find it right in correspondence. At least one or two instances of it.

Mr. AMBERG. Didn't Mr. Ickes tell you yesterday, if I recall his testimony—and perhaps he had a letter—it was his suggestion about the pipe line from Skagway to Whitehorse and the product lines?

Mr. FULTON. What suggestion?

Mr. AMBERG. I think Mr. Ickes stated that was one of the things he favored.

Mr. PATTERSON. In any event, various phases of it were discussed with Mr. Ickes.

Mr. FULTON. We would like to have that.

Mr. PATTERSON. After the initiation of the project.

Mr. FULTON. When was the first discussion you know of, Mr. Amberg?

Mr. PATTERSON. Or with people on Mr. Ickes' staff.

Mr. AMBERG. All I know is what Mr. Ickes said yesterday.

Mr. FULTON. That is all I know. I do want to refer, in view of it—

Mr. PATTERSON (interposing). What I would like to do, Mr. Fulton, is turn over to you the correspondence between the Secretary of War and Mr. Ickes, and also between Mr. Ickes and me, and I think you can find in that correspondence several instances where Mr. Ickes commented on certain phases of the project, and where his comments were considered and received. He asked to send an engineer up and we said "Certainly," and we facilitated his sending an engineer up.

Mr. FULTON. Of course, there is the question of resolving his testimony in any other facts that may result. I wanted to call your attention to an article in the World Petroleum magazine and to a similar article in MacLean's, Canada's National magazine, and ask you whether and why the Canol project would employ a man as a consultant and historian who would be connected with the project since its inception and who would write articles in popular magazines at a time when Mr. Ickes, anyhow, and the War Production Board anyhow, thought they weren't being permitted to get information.

Mr. PATTERSON. I don't know anything about these articles. I haven't seen them.

Mr. FULTON. How did these articles get to be printed? Were they approved by the War Department?

Mr. PATTERSON. Not by me. I don't know who approved them; maybe somebody did.

Mr. FULTON. Congressman Gavin yesterday pointed out that he was denied any information and yet we find these articles being referred to in print and most of the information was obtainable before this time of this committee's investigation and that can be found by looking at Canada's magazines.

Mr. PATTERSON. You had better find out from the author. I don't know.

Mr. FULTON. Did you pay the salary of Mr. Richard Finney as consultant and historian?

Mr. PATTERSON. I personally did not and I never heard of the man before.

Mr. FULTON. How did he obtain these pictures of the actual work being done there if he were not in some official task?

Mr. PATTERSON. You will have to ask the project engineer. I did not inspire any article.

The CHAIRMAN. Here is what he says, Mr. Secretary: "Photos by Richard Finney for U. S. Corps of Engineers, Northwest Division." That is under every one of these pictures, so he must have been working for the Corps of Engineers if he made those pictures.

Mr. PATTERSON. He may have; I never heard of him; I never heard of the articles.

Mr. FULTON. Was he authorized to write these articles for the War Department when the press and the Congress were not being given information?

Mr. PATTERSON. You will have to ask whoever was in charge of the project. I did not authorize him.

Mr. FULTON. He refers here to an article in November 1940, which he contributed to World Petroleum and which is said to be a very complete account of the history and development of Norman Wells. If there is any secrecy wouldn't that be—

Mr. PATTERSON (interposing). I never heard of the article, Mr. Fulton. I can't tell. I never heard of the writer, either.

Mr. FULTON. Can we have information as to whether his articles were authorized and as to whether his salary or expenses were paid and if so how much?

Mr. PATTERSON. I suppose, yes. I suppose it is under the Engineers' office up there in that area.

The CHAIRMAN. One of these articles was printed on August 15, 1943, and the other one in November 1943. One is called the Canol Blitz, by Richard Finney, and the other one in the World Petroleum magazine is called United States Army Taps Canadian Oil for Alaskan Based Operations, by the same author.

Mr. PATTERSON. Both Canadian magazines?

Mr. FULTON. One is.

The CHAIRMAN. One is. I don't know what this World Petroleum magazine is or where it is published. It looks like it is published in Tulsa, Okla.

Mr. PATTERSON. This man may be an employee of the Corps of Engineers, I couldn't say. I never heard of him.

Mr. FULTON. Then proceeding to a further question, you refer to the Chiefs of Staff deciding this; before they decided it did they consult the opinion of the Alaskan Defense Command?

Mr. PATTERSON. I wasn't present, Mr. Fulton. I don't know whom they consulted. I know that the matter was gone into. It was not just a snap matter. Whom they did consult or whom they didn't consult, what papers they had and what papers they didn't have I don't know. You can go right down a long list and I would still say I don't know whether they had it before them or not.

Mr. FULTON. Would it surprise you to learn that one of the principal generals of the United States-Alaskan Defense Command expressed the opinion that this was of no value to the defense of Alaska?

Mr. PATTERSON. It would depend upon whether he knew anything about it or not.

Mr. FULTON. Suppose he knew as much as General Streett knew on the 29th of April when he was consulted.

Mr. PATTERSON. You don't think that is very much.

Mr. FULTON. Do you?

Mr. PATTERSON. I don't know.

The CHAIRMAN. The committee will recess until 10:30 tomorrow morning, when we will continue with the testimony of the Army officers.

I want to make an announcement so everybody can hear it. We are going to hear first Charles Wilson of General Motors,¹ and as soon as we are finished with Mr. Wilson we will hear General Carter on the Canol project, so General Carter doesn't need to come until 11 o'clock unless he so desires.

(Whereupon, at 1:26 p. m., the hearing recessed until 10:30 a. m., Wednesday, November 24, 1943.)

¹ Published in Hearings, Part 21.



INVESTIGATION OF NATIONAL DEFENSE PROGRAM

WEDNESDAY, NOVEMBER 24, 1943

UNITED STATES SENATE,
SPECIAL COMMITTEE INVESTIGATING
THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

The committee met at 10:15 a. m., pursuant to adjournment on Tuesday, November 23, 1943 in room 335, Senate Office Building, Washington, D. C., Senator Harry S. Truman presiding.¹

Present: Senators Harry S. Truman, chairman; Homer Ferguson, Ralph O. Brewster, James M. Mead, Joseph B. Ball, Tom Connally.

Present also: Hugh A. Fulton, chief counsel; H. J. Robinson, investigator.

The CHAIRMAN. Let's proceed, gentlemen.

TESTIMONY OF BRIG. GEN. WALTER B. PYRON, ARMY-NAVY PETROLEUM BOARD¹

The CHAIRMAN. General Pyron, will you please give your full name and title for the record?

General PYRON. Walter B. Pyron, brigadier general. At the present time I am chairman of the executive committee of the Army-Navy Petroleum Board, and director of the planning division of the Army-Navy Petroleum Board, which is a joint board of the Army and Navy, operating under the Joint Chiefs of Staff of the United States Army and Navy.

The CHAIRMAN. Thank you, General. Mr. Fulton, you had some questions you wanted to ask General Pyron, I believe.

Mr. FULTON. General Pyron, I understand you were the executive vice president of the Gulf Oil Co. in civil life.

General PYRON. I was prior to the time I came into the Army in 1940.

Senator CONNALLY. Let me interrupt right there a minute. General Pyron, in order to develop a little more your background, you are a brigadier general at the present time in the United States Army.

General PYRON. Yes, sir.

Senator CONNALLY. Have you or not been active in military matters for a great many years?

General PYRON. Yes, sir.

Senator CONNALLY. In the National Guard of Texas and things of that kind. You might outline that briefly, if you don't mind.

The CHAIRMAN. No. I am glad to hear he was a National Guard officer. It pleases me.

¹Testimony prior to this point, on November 24, 1943, appears in Hearings, Part 21.

General PYRON. Yes, sir. I was in the National Guard before the First World War. I was taken out of the National Guard because I was in the oil business and was told that we had to have more oil. Following the World War I was called back in and served continuously as an officer in the National Guard since 1920. I have commanded troops in the grades from captain up including brigadier general.

Senator CONNALLY. What I wanted to develop was that you were a brigadier general in the Guard before the war.

General PYRON. Yes, sir.

Senator CONNALLY. You were taken into the War Department as an oil expert or, rather, as an oil executive, and placed in the position which you now occupy.

General PYRON. Yes, sir. I was with troops in the maneuvers in Louisiana when I was called to Washington to this position handling oil matters.

Senator CONNALLY. And financially you were doing much better in the oil business than you are in the Government service?

General PYRON. Somewhat; yes, sir.

Senator CONNALLY. That is all.

Senator BALL. How long have you been in the oil business, General?

General PYRON. Since 1904.

The CHAIRMAN. You beat me by just 1 year, General.

Senator CONNALLY. I just want to say for the record that I know General Pyron and have known him for many years, and he is one of our outstanding citizens and oil men in Texas. Now go ahead.

PLANNING OF THE PROJECT

Mr. FULTON. General Pyron, were you requested to attend the conference of April 29, 1942, at which Mr. Graham discussed the question of the oil project for the Alaska highway?

General PYRON. Yes, sir.

Mr. FULTON. When you were called to that conference, what had you been told about the purpose of the conference?

General PYRON. I had not been informed formally of what was to transpire except that some technical representatives from the Imperial Oil Co. of Canada would be present. I was requested to attend this conference and listen to what they had to say about this field.

Mr. FULTON. Had any time been given you before during which you were requested to compile or analyze data and statistics so that you would be able to make a determination there of what should be done, or was this something which you were given relatively short notice of and requested to attend?

General PYRON. I had not been given any directions to study or analyze it. It had been discussed informally and briefly, I would say, two or perhaps three times prior to the meeting, with Colonel Graham. I think perhaps at one time Mr. Stefansson was brought in by Mr. Graham, and discussed very informally the situation up there.

The CHAIRMAN. That is the great Arctic explorer?

General PYRON. Yes, sir.

Mr. FULTON. What he was discussing, I understand, was the question of the availability of some oil at Norman wells which could be

used in case route D, the Great Slave Lake and Mackenzie River route, was to be utilized to carry material to Alaska or to the northern region.

General PYRON. Mr. Stefansson, yes, was discussing the various routes. He was discussing climatic conditions and briefly referred to what he knew of the oil situation up there at Norman Wells and—I recall he made one suggestion of putting a refining plant on Mayo Lake and then transporting the product down a small river into the Yukon.

Mr. FULTON. Is Mayo Lake on the Mackenzie River, or where is it located?

General PYRON. No, sir; by air line it would be about midway between the Mackenzie and the Yukon.

Mr. FULTON. Still in Canadian territory?

General PYRON. Yes, sir.

Mr. FULTON. Did Mr. Stefansson also refer to Fairbanks as the location of the refinery?

General PYRON. He suggested, I think at a later date (this was after the conference), Fairbanks, primarily, as I recall it, because he thought the pipe-line problem would be simpler if we took a route farther north. He knew of some passes through the mountains that were lower than the passes through the mountain on a direct line to Whitehorse.

Mr. FULTON. Has subsequent examination indicated that that would be an easier route?

General PYRON. No, sir; it would not. It would be a much longer line, perhaps 150 miles longer line. It would cross more what is now termed muskeg territory, which has been the worst headache of the whole proposition in construction, and it would throw it farther to the north, with much more severe weather conditions to combat.

Mr. FULTON. You mean that the weather there is below 70 below zero?

General PYRON. It does get below. I mean you have these extreme weather periods that last a week or 10 days or 2 weeks down south, and the farther north you go the more constant is the low temperature.

Mr. FULTON. Before you went to this meeting you knew from Mr. Stefansson, and, I believe, from other sources, that there had been a program in which several wells had been drilled in the Norman area, did you not?

General PYRON. Yes, sir.

Mr. FULTON. And you knew that the production was a small production taken in the summertime for use along the Mackenzie River and Great Slave Lake in such commercial traffic as they had at the time?

General PYRON. I did.

Mr. FULTON. Was that about the extent of what you knew of it?

General PYRON. I knew something additionally about it from talking to men who had been on the ground, about the rather peculiar characteristics of the oil, and I knew something, of course, of the climatic conditions there; but I did not know the extent of the field, neither did I have prior to the meeting a detailed geological report on it, although I had heard geologists and others talk of it in a general manner.

Mr. FULTON. What had been the occasion for your prior investigation of this field?

General PYRON. Just as any oil executive is required to know what is going on in the world, whether it is in Burma, or Alaska, or anywhere else. It is a part of our duties to study world-wide conditions.

Mr. FULTON. Do you mean that, as an executive of the Gulf Oil Co., you had made a study and investigation of the Imperial Oil field in Norman wells?

General PYRON. I had not made a detailed study of it.

Mr. FULTON. Had you seen any geological data on it?

General PYRON. We had followed and studied what geological information was available from the U. S. G. S. and from Canadian sources, and it was just a general study, as we must constantly study in all parts of the world.

Mr. FULTON. General, do you mean that when you went into that conference you had knowledge of the geological data of that field, the type of oil that was produced there, the qualities of the oil, the conditions under which it was produced, the cost, and other data of that kind?

General PYRON. No, sir; I did not have, as I said a moment ago, a detailed geology of the field. I knew the geology of the country, of the Mackenzie Basin, of the Point Barrow region, of the Alaskan peninsula, and the old Katalah field.

Mr. FULTON. Had you ever been to Norman wells?

General PYRON. No, sir.

Mr. FULTON. Had you ever talked with any of the engineers who worked for the Imperial Oil Co. on the Norman wells project?

General PYRON. I have at times. I talked to—I don't recall his name—one of their men several years previous. I talked to at least one oil man, Suman, of Houston, Tex., who was up there on a hunting trip and spent several days there. He gave quite a detailed explanation of what he saw. That was, I think, in 1939.

Mr. FULTON. Was this discussion by the Houston executive who had been there on a hunting trip the only discussion that you had previously had on this oil field with any man who had been through it?

General PYRON. No, sir. I discussed it briefly and informally with—I have forgotten the name of the geologist—of the Imperial Oil, several, perhaps, prior to that.

Mr. FULTON. That is, prior to several years before this conference?

General PYRON. Yes, sir.

Mr. FULTON. And you recollected what had been said at that discussion?

General PYRON. Just in a general way I remember what was said. It was an unusual thing, and an unusual geological condition; there was certainly nothing like it as far as climate was concerned, and it was an interesting thing that would interest any oil man, especially those in the producing end of the business.

Mr. FULTON. Did you feel when you went into the conference that you had the kind of data on which, as an executive of the Gulf Oil Co., you would base an opinion as to whether a project should be or should not be adopted?

General PYRON. I did not have the full detail, as I have related, the geology or the total production or well production, which was given to us at this meeting.

Mr. FULTON. Had you been considering an expenditure of, say, \$10,000,000 by the Gulf Oil Co., would you have considered that you

had information on which you could adopt the project and bind the Gulf Oil Co. for \$10,000,000?

General PYRON. I didn't have prior to the meeting.

Mr. FULTON. At the meeting I understand that the Imperial Oil engineers told you certain facts with respect to the field; did they not?

General PYRON. Yes, sir.

Mr. FULTON. Is it your recollection that what they told you was roughly the same as what they wrote in their letter of May 2 and what they said in their memorandum of the conference when they returned?

General PYRON. No, sir; I would say it was quite different. The geologist and petroleum engineer and production man there told us very frankly that they could not, because of the limited number of wells drilled, give us positive assurance that 3,000 barrels per day could be produced, but they did indicate that it was their opinion that with additional drilling that much oil could be produced. They did make it positive that they couldn't assure it because of the fact that the wells had never been produced over 90 days per year, although they had produced for a period of 20 years, that they didn't have a full knowledge of the area, how wide it was, enough to assure it. Whereas the letter that followed in May was more pessimistic as to production.

Mr. FULTON. You mean at the conference they told you that because they had only three producing wells, none of them more than a quarter of a mile apart, they couldn't be sure of what the field was, but they did think that there was a reasonable prospect of being able to get 3,000 barrels a day if they drilled.

General PYRON. Yes, sir.

Mr. FULTON. But that they could not assure.

General PYRON. No; they could not give us absolute assurance of it without knowledge to be gained by additional drilling.

Mr. FULTON. As an oil executive, you would of course be familiar with the fact that no one could give such an assurance on the limited drilling that had been made at that field.

General PYRON. That is correct, and it just simply meant that additional information could be gained only by some additional drilling.

Mr. FULTON. Did they also tell you the characteristics of the oil?

General PYRON. Yes; generally. As I recall it, they had some form of analysis of the crude.

Mr. FULTON. Would you tell us whether, from an inspection of those characteristics, you were able to conclude that they could make 100-octane gasoline at that location from that oil?

General PYRON. Yes. The oil was of such a general character that it could be said that you could make aviation gasoline.

Mr. FULTON. I said 100-octane gasoline.

General PYRON. That is right, 100-octane.

Mr. FULTON. Without bringing in any additional components?

General PYRON. You could with certain types of refinery. You see, to make 100-octane gasoline, it is the process rather than the crude. You can take most any type of crude with any substantial amount of normal gasoline in it, then put in a plant, break up the higher fractions—and you can make it out of even some low gravity crude—and it will make 100-octane gasoline. It is the plant rather than the crude.

Mr. FULTON. In order to make 100-octane gasoline out of that, what would you need in the line of plant equipment, refinery equipment?

General PYRON. You would have to have cracking equipment.

Mr. FULTON. Would cracking equipment be sufficient?

General PYRON. No, sir; not within itself. You would have to have alkylation equipment and isomerization equipment and, if you wanted to go deeply into it, you would have to have facilities for making hydrocodimer and other higher components.

Mr. FULTON. In order to make 100-octane gasoline from that oil, you would have to bring in all these components unless you built something in addition to the ordinary cracking plant refinery; isn't that correct?

General PYRON. You would do that, yes. It would be necessary to build a plant that integrated this equipment to make 100-octane gasoline. Those units are normal in this country or any other place.

Mr. FULTON. When you say "normal," isn't it true that most of the refineries in the United States, including the modern ones that were built and in existence at the time this war started, didn't have such equipment?

General PYRON. No. That is right. At the beginning of the war there were very few plants in the world that made a finished 100-octane gasoline.

Senator CONNALLY. General, I want to ask you this question. You mean that if you have the right kind of equipment in the plant, you can make the 100-octane without the addition of any other materials or components. Is that what you mean?

General PYRON. You make it within the plant, Senator. You make your alkylate, you make your hydrocodimer, and you make the other components in the plant, with one exception, and that could not be made in the plant. That is the tetraethyl-lead fluid. You couldn't make that in the plant, but normally that is made outside and shipped in because it constitutes a small part of it.

Senator CONNALLY. All of these other elements, though, you could make in the plant out of the oil; is that right?

General PYRON. Yes, sir.

Senator CONNALLY. Out of the oil itself?

General PYRON. The oil and the gasoline. Some of them are made from gasoline and still gases from the plant.

Senator CONNALLY. What I was getting at was, to make the 100-octane, except for this tetraethyl lead, all of the essential components can be manufactured in a plant, if you have the right equipment, from the oil.

General PYRON. Yes, sir; that is right.

Senator KILGORE. Could I ask a question at that point?

The CHAIRMAN. Certainly.

Senator KILGORE. I am asking for information on it. Isn't it true that some of this stuff has to be made from what is called natural gasoline and cannot be made directly from crude?

General PYRON. Not necessarily.

Senator KILGORE. It can all be made directly from crude?

General PYRON. It can be made from the crude and from the gases generated from the crude in the refining processes.

Senator KILGORE. Isn't it a fact, also, that hydrogenation will do that without the addition of all these other plants, if you have a hydrogenation plant?

General PYRON. There are various ways, different types of making it.

Senator KILGORE. Also, the quantity of 100-octane gasoline that you can get from any crude, of course, is dependent upon the type of crude. Some crudes will not produce as much gasoline as other crudes.

General PYRON. That is very true. There are some types of crude in the world from which you can make 24 percent by volume of 100-octane, and yet there are others that perhaps wouldn't make over 10 or 12, regardless of the process. But any crude that has any light fraction can be made into 100-octane of some percent. It may be higher or lower.

Senator KILGORE. Isn't it a fact that the governing factor in deciding that is the specific gravity of the crude?

General PYRON. That is not altogether the controlling factor.

Senator KILGORE. Not altogether, but—

General PYRON (interposing). It is one of the principal factors.

Senator KILGORE. It is one of the factors that you figure from, the specific gravity.

General PYRON. Yes, sir.

Mr. FULTON. It is the most important factor, isn't it, as a single factor?

General PYRON. The specific gravity means this: It is the lightness of the product. If the base crude is a light product, that necessarily means that it has more light hydrocarbons than oil of a lower specific gravity.

Mr. FULTON. And if you had an oil of a heavy specific gravity, it would be desirable to use that for some purpose other than the manufacture of a high-octane gasoline.

General PYRON. Well, normally that would be true.

Mr. FULTON. It would be foolish to do anything else; wouldn't it?

General PYRON. No; some heavy oil, when they are cracking it, will produce a substantial amount of high hydrocarbons.

Mr. FULTON. Now, with respect to alkylation plants, isomerization plants, and plants that make hydrocodimer, those were the scarcest articles in our entire aviation-gasoline program; were they not?

General PYRON. Some of the machinery that went into those plants was quite scarce.

Mr. FULTON. And the engineering and architectural skill necessary to design and build the plants were likewise scarce; were they not?

General PYRON. That is right. The science of making 100-octane gasoline was practically a new science at the beginning of this war, and there was a limited number of engineers who knew how to do it. Of course, there were limited facilities for doing it.

Mr. FULTON. Would you agree with the statement of Secretary Ickes that the problem of designing and having built and then constructing at the location a refinery to use these new and modern processes would be almost as great for a small plant as for one considerably larger?

General PYRON. It wouldn't require the same manpower or the transportation for a small plant; of course it is greater in proportion to build a 5,000-barrel plant than it is to build a 20,000-barrel, because there is some equipment that goes into a 20,000 barrel plant that you

just simply increase the size of, and there is not much additional time taken up in the design or in the fabrication.

Mr. FULTON. So that to build a small plant you do use this scarce design and fabrication experience, and that would also be true, would it not, in putting the plant together and making it actually fit for operation at the scene, that you would have to use the same engineering skill to assemble it?

General PYRON. We use the same type of men; yes, sir, whether it is a small or a large plant.

Mr. FULTON. Now, Dean Graham, speaking yesterday, said that he had the impression that the refinery to be used would be some second-hand refinery that wouldn't be of any use to the war program in the United States, of which he thought several would be available. Was he informed at the meeting, or were you asked to give them details on this question of alkylation, isomerization, and hydrocodimer construction?

General PYRON. The new plant that was under construction was not discussed at the meeting. The only discussion of a refinery at the meeting was the small plant that the Imperial Oil had at that time at Norman wells.

Mr. FULTON. That was not even a cracking plant; it was a mere topping or skimming plant; wasn't it?

General PYRON. That is right.

Mr. FULTON. That is the very old-fashioned type that we originally had in the oil business, whereby you simply heat the oil and the lighter products go off at lower temperatures?

General PYRON. It is just a distillation-process plant, rather primitive type.

Senator CONNALLY. Let me ask a question right there.

The CHAIRMAN. Go ahead.

Senator CONNALLY. Although, of course, any large plant, General, would have economies per unit, I suppose, over most small ones, is it true or not that a small, mobile, complete unit could turn out good high-octane gas?

General PYRON. Yes, sir; absolutely. Anyone that would turn out 100 or 500 barrels or any fraction.

Senator CONNALLY. Just so it has the necessary equipment—

General PYRON. The necessary equipment.

Senator CONNALLY. To do the particular processes, it can turn out good gasoline, though it may not be a tremendously big plant?

General PYRON. Yes, sir.

Senator CONNALLY. Thank you.

Mr. FULTON. My question with respect to the equipment was simply this, as to whether Secretary Ickes was right that to make high-octane gasoline out of this oil, you would have to have the most modern equipment of the kind that was most scarce in this country—to which, I take it, your answer was "yes"?

General PYRON. Yes; that is correct. It would take the same type of equipment that would be used in any plant, whether it is the United States or China or anywhere else.

Mr. FULTON. Now, with respect to the topping plant at Norman Wells, that plant couldn't make gasoline of 100-octane character at all, could it?

General PYRON. No, sir.

Mr. FULTON. And what would be the highest octane you could expect from it?

General PYRON. Eighty-five to ninety octane would be about the maximum that could be made there, and if you make that, it would be necessary to ship in components. In other words, they couldn't make alkylate and they couldn't make hydrocodimer there. They didn't crack it; they didn't get what we call high-octane base stock; they had to start with the best motor gasoline they could make and add alkylates, tetraethyl lead, to bring it up to the higher octane.

Mr. FULTON. In making that, they would also make a very small quantity, proportionately, from the total number of barrels processed, would they not, with the skimming plant?

General PYRON. Well, comparatively.

Mr. FULTON. That is the reason you crack oil, isn't it, in order to get a—

General PYRON (interposing). That is right, to increase the volume and increase your lighter fractions.

Mr. FULTON. In addition, when you say they bring in components, would they not have had to bring in from 40 to 60 percent of the total output in gasoline? I mean, the components would have amounted to almost as much as the oil that they produced and mixed with the components, would it not?

General PYRON. I have just seen in some of the testimony that they were shipping in 60 percent, approximately 60 percent components, to build it up to what we call an 87-octane aviation gas. And I would suspect that that figure is not far from correct.

Mr. FULTON. In other words, in order to operate to make any aviation gas at all, even the small quantity that would be available through a topping operation plant, you would have to bring in 60 percent of what you ultimately got in gasoline?

General PYRON. If you wanted to get an 87-octane gasoline. There are many airplane motors which will run on even 68 and 70, and they could do that without bringing in anything but a little lead.

Mr. FULTON. What are the Army specifications on octane gasoline for airplane motors?

General PYRON. It varies. Some of the small-type motors in small planes can use 68, 72 octane. They use 87, 81. They, of course, use 100 octane as far as possible in all combat-type planes.

Mr. FULTON. So that we would be talking about noncombat operations, would we not, if we were under 87-octane gasoline?

General PYRON. The present combat motors are not designed to use less than about 87 octane.

The CHAIRMAN. Did you have a question, Senator?

Senator FERGUSON. Did you discuss, at the meeting of the 29th, what you were going to use the gasoline for, if you made it? Was that discussed?

General PYRON. No, sir. That meeting, Senator, was primarily for the purpose of learning what the availability of crude oil was. There was not much else discussed at that meeting.

Senator FERGUSON. Just how much oil you could hope to get out of the field?

General PYRON. Yes, sir.

Senator FERGUSON. And was your opinion asked as to how much they could get out of the field?

General PYRON. I don't know whether it was, or following the meeting. I know I was asked if I thought they could produce 3,000 barrels a day.

Senator FERGUSON. What did you say?

General PYRON. I told them I thought it was possible.

Senator FERGUSON. Even though they had only—

General PYRON (interposing). With additional drilling.

Senator FERGUSON. Even though they had only explored, say, a little over a mile—was it a mile?

Mr. FULTON. Quarter of a mile, between the two wells that were producing.

Senator FERGUSON. The two wells were very close together, just a few yards, and the others were a quarter of a mile away. Did you pass an opinion that they could get 3,000 barrels?

General PYRON. I told them it was my opinion that it could be, judging from the information that we had on the field, but it could not—I qualified my statement by saying that it couldn't be definitely determined until more wells, several more wells, were drilled on the structure to define its length and width.

Senator FERGUSON. Did they tell you what holdings they had there, how many acres?

General PYRON. I don't recall that that was discussed at that meeting.

Mr. FULTON. Well, General—

Senator CONNALLY (interposing). Let me ask you a question on that point. Your tentative opinion as to the possibilities of 3,000 barrels a day, of course, was based on your general knowledge of oil conditions, that where two or three wells, even within a quarter of a mile of each other, are producing, the probabilities are that the oil pool would cover a larger area. Is that true?

General PYRON. Yes, sir, that is true. Then they submitted at this meeting a geological map, a surface geological map; then they submitted a subsurface geological map, which shows contours made on the subsurface formations; then they submitted what we call a cross-section, a subsurface cross-section, extending from the outcrops of that oil sand up in the mountains down to and including the well farthest out on the west side. That showed the thickness and depth of the producing formation.

They showed us all those things, but one of the most convincing things that was given to that committee was the fact that these wells were 20 years old, 18 and 20 years old, and while they had been producing not to exceed 90 days per year, there had been no change in what, in the industry, we call rock pressures, in those wells, notwithstanding a substantial amount of oil having been taken out, which to any oilman indicated that there was a bigger source of supply backing that up. Otherwise, you would have had a severe decline in the pressure of those wells. And the thickness of the sand as it approached these wells indicated that there must be more production than they were getting.

Senator CONNALLY. Upon those facts you based your opinion?

General PYRON. That is correct.

Senator CONNALLY. That it was possible to get 3,000 barrels, although you didn't guarantee it or insure it?

General PYRON. I didn't. Nobody could guarantee it.

Senator CONNALLY. That is all.

Mr. FULTON. Well, General, as a matter of fact they did get more than the 3,000 barrels, so that so far as you gave them an opinion on that, the subsequent facts supported your opinion.

General PYRON. That is right, and I may add this that the results have been much more favorable and much larger than I think any geologist or oilman at the moment would have even dared estimate; certainly much larger than I ever estimated.

The CHAIRMAN. It turned out to be a very satisfactory wildcat venture in the long run, for which we are all happy, but I still don't believe it is worth \$134,000,000.

Mr. FULTON. Well, General, your opinion wasn't asked as to whether it was worth \$134,000,000, was it?

General PYRON. No, sir.

Mr. FULTON. With respect to this operation, did they ask your opinion as to how long it would take to get oil rigs up into that territory and do the drilling and prove up the field and establish the necessary operations to produce 3,000 barrels a day?

General PYRON. I think that was briefly discussed. The Imperial Oil Co. had one or perhaps two drilling rigs on the ground that were more or less worn out. They stated it would be necessary to ship in some additional rigs and ship in some pipe and other equipment, which obviously couldn't be done until the opening of the waterways through Great Slave Lake, which usually occurs by June. After it is transported in there, it takes some time to rig up and drill the wells. I don't recall that there was an definite date set by which this could be accomplished.

Mr. FULTON. In general, would it be fair to assume that if there was oil there, you could explore and drill for it probably sooner than you could build a pipe line and refinery, so that you wouldn't have had any immediately pressing time element on the drilling for Norman wells' expansion? You would either prove the well or you wouldn't prove the district. You could do that drilling sooner than you could construct the refinery?

General PYRON. These wells are relatively shallow and easily drilled, so it was a matter of relatively a short time in which you might determine whether you had 3,000 barrels, or whether you could depend on 3,000.

Mr. FULTON. Am I correct in assuming that that is, in effect, the point that you were asked to talk to the group about—that is, to give your opinion on: Namely, that you thought it was a fair venture, a reasonable venture, to try to get 3,000 barrels of oil per day in the Norman wells area if they wanted for military reasons to obtain that production?

General PYRON. That was my understanding of the principal purpose of this meeting, to determine that fact.

Mr. FULTON. At least it was the principal purpose of your being consulted at the meeting—I mean your function there?

General PYRON. That is right.

Mr. FULTON. Now, did they ask you specifically, or did you ever express any opinion to them, as to how long it would take to design and build all these different refinery units, the alkylation unit, the isomerization, and the hydrocodimer?

General PYRON. No, not before the meeting, and not at the meeting. Of course, the Corps of Engineers were charged with the duty of supervising and directing and doing that work, and they followed it, and I wasn't charged with that. It was discussed with me by engineers on different phases of it at different times.

Mr. FULTON. You mean subsequent to the directive?

General PYRON. Yes, sir.

Mr. FULTON. You never expressed at the meeting of April 29—and I take it you, as a competent oil man never would have expressed—the opinion that that could be accomplished in a few months' time?

General PYRON. May I ask what you refer to? The whole program?

Mr. FULTON. I am referring to the building of an alkylizing unit, an isomerization unit, a hydrocodimer unit, and a refinery capable of making 100-octane gasoline, with all the facilities that would be necessary to be designed and constructed here in the United States and transported up there and finally assembled and put into operation.

General PYRON. No, sir; the time, I am sure, wasn't discussed. In fact, as I said, at that meeting there was little or no discussion—I think none—about the present plant; just a little about the Norman wells plant.

Mr. FULTON. As a petroleum expert, I take it you would agree that to accomplish that kind of job, it would be a matter of 1 or 2 years, rather than a few months, would it not?

General PYRON. Well, I don't think anybody who actually got into it ever expected a refinery, for example, to be erected in less than a year—perhaps in a longer time.

Mr. FULTON. Would you say there have been delays that you wouldn't ordinarily have expected to have occur, with respect to these refinery operations, that would explain why Mr. Patterson now doesn't expect the refinery to be in operation until some time in 1944?

General PYRON. There have been some delays in transportation; because of some change in the strategical situation, it hasn't been given high priority scheduling in transportation.

Mr. FULTON. You wouldn't be critical of the Chief of Engineers for not being able to get this refinery into operation in less than about 2 years after the directive, would you?

General PYRON. Yes, sir, I would. I think perhaps in June 1942 the directive on the pipe line and refinery called for completion in December 1943. I don't know anybody in the Army who expected it before that. Of course, we could have completed the pipe line earlier if we had had the airplanes, the transport planes, and flown that pipe in there.

Mr. FULTON. You mean airplane transportation to carry your pipe?

General PYRON. Yes, sir; we are doing that today in other parts of the world.

Mr. FULTON. December of 1943 would be the earliest time that you would have thought it reasonable, back in '42, to expect to do a job of that magnitude?

General PYRON. In the summer of 1942, that was apparently the best estimate of completion of the whole project.

Mr. FULTON. Did you read the memorandum of Dean Graham, the 1-page memorandum to General Somervell, which he wrote on April 29, 1942? ¹

General PYRON. Yes, sir.

Mr. FULTON. Did you notice that he seemed to expect this would be in operation in the fall of '42?

General PYRON. Well, I don't know whether he expected it or not.

Mr. FULTON. What dates did he give? The only dates in the memorandum are for the fall of '42, aren't they?

General PYRON. It would have been impossible to dismantle and move and reerect a refinery in that time. As I said a moment ago, if we had had the use of airplanes and other fast methods of transportation, you could have drilled the wells, and by using airplanes, you could have had the pipe line there perhaps by that time.

Mr. FULTON. The pipe line could have been constructed by the fall of '42?

General PYRON. It could have in an emergency, by using enough troops.

Mr. FULTON. How many hundred thousand people would have been involved in that job?

General PYRON. It wouldn't have required a hundred thousand, but a little over 500 miles of line, 4-inch, could be laid very rapidly.

Mr. FULTON. But it is more than 500 miles.

General PYRON. It would take about 540 or 560, approximately.

Mr. FULTON. How many bridges would have to be erected?

General PYRON. No bridges of any consequence, except temporary.

Mr. FULTON. How many miles of road had to be built even to get your pipe line up to the plant?

General PYRON. Well, we built what we call a tote road finally along the entire length of the line, but if the emergency was grave enough and you had to fly pipe in, then you would have short hauls and it wouldn't have required a continuous roadway.

Mr. FULTON. Where would you fly your pipe in? You would have to build your airfields, wouldn't you?

General PYRON. You can have strips or land on the water along the lakes through there, using float-type planes. But that was not possible. That was ruled out immediately because the planes were not available.

Mr. FULTON. Not only were the planes not available, but in order to complete a project of that size in a few months, the number of men involved, the supplies just to feed them, to keep them working, all the other things that would have had to be put in, would have made a project bigger than any other we have got, wouldn't it?

General PYRON. It wasn't given very serious consideration when the amount of planes were not available. That was the primary reason.

Mr. FULTON. I mean, that particular proposition couldn't be given very much consideration because it is so obviously one that wouldn't be desirable.

¹ Exhibit No. 1095, appendix, p. 9842.

The CHAIRMAN. General, I wanted to ask you a question right there. Who was particularly pressing you for completion of this project at the time of the conference about which we have been talking?

General PYRON. I don't know, Senator. My only contact was with Mr. Graham. He came in a time or two.

The CHAIRMAN. Mr. Graham was special assistant to General Somervell, wasn't he?

General PYRON. Yes. At that time he was, I think, special assistant to the Under Secretary of War, and General Somervell, perhaps to the Secretary of War.

The CHAIRMAN. From the statement of my able and distinguished colleague here who says you are a good oil man, I am inclined to believe that you are; since you are a brigadier general in the National Guard, I am inclined to think you are a good soldier.

General PYRON. Thank you, sir.

The CHAIRMAN. Isn't it true that you were, like every other good soldier in that set-up, under the impression that General Somervell and the Under Secretary of War wanted this project, and you were trying to help them out to some extent?

General PYRON. I was under this impression, that 3,000 barrels of oil and as much 100-octane gasoline as could reasonably be gotten out of there were highly desirable in the military operation. For example, those fields in southern Alaska were discussed briefly and were ruled out because we just couldn't see the possibility of it. They wanted to get a supply of oil near that base of operations, and they seemed to have at that time this 3,000 barrels in mind, or more. They always wanted to know if more was available. They asked my advice on whether I thought that much was available. They later asked me if I thought it could be transported through a pipe line to the Yukon, and I told them it was my opinion that it could.

The CHAIRMAN. In your opinion, your honest opinion as an oil man, not as a brigadier general in the Army, wouldn't it have been a more economic proposition even for the purpose for which you intended it, military purposes, to have piped it to the Yukon and transported it by tanker down the Yukon to a refinery in Alaskan Territory?

General PYRON. No, sir; because the type of refinery you had at Norman wells would not make the 100-octane gasoline. It would not make a satisfactory Diesel. It was a very primitive type of refinery. Therefore, to accomplish that, you would have had to build a refinery, similar to the refinery that went to Whitehorse, at Norman Wells, and that would have been almost an insurmountable task to move in that heavy equipment on the Mackenzie River.

The CHAIRMAN. I see. Well, now, is it your studied opinion as an oil man that a 3,000-barrel production in a place where it goes to 70 below zero, they tell me, 6 months in the year, is a proposition that would be useful in a war emergency for the purpose of getting gasoline even for trucks?

General PYRON. Well, it would be difficult, Senator, a very expensive proposition; but in wartime, if you have four or five hundred barrels a day of 100-octane gasoline, and perhaps 1,500 of motor gasoline and Diesel, it could be of extreme value in any military operation, offensive or defensive.

The CHAIRMAN. General, did you by any chance read the letter of the Standard Oil Co. of California on the suggestion of the erection of a tank farm at Hazelton, in British Columbia, east of Prince Rupert, at a rail head, as a more economic and more satisfactory and quicker project than this could ever be? ¹ Did you consider that letter?

General PYRON. We read it and it was not given serious consideration because that did not answer one of the principal purposes for which this line was designed, and that was for protection of the troops and for the protection of Alaska and the United States. At the time that thing was put in there, we were losing tankers; we were losing other ships along the coast. There was no assurance and nobody could give the Army assurance that these movements of petroleum, either in the open sea or on the inland waterways, could be protected. Now, if we had in that locality oil of any quantity, it would just have given us that much insurance, whether it was 500 barrels or 20,000, and that wasn't given serious consideration because it again relied on the safe movement of our oil from California.

The CHAIRMAN. Was the Navy consulted about that safety proposition?

General PYRON. I don't know. I did not consult them.

Mr. FULTON. Well, General, do you mean that you were asked to formulate an opinion and did formulate an opinion that it was better to have 479 barrels of gasoline a day sometime in 1944 than it would be to bring the oil up in 1942 as suggested by the Standard Oil of California and disperse it in tank farms around where it was needed?

General PYRON. No; I don't mean that. The Army and the Navy were at that time moving what they could up there, and the Army was building certain underground tankage which was followed by pipe lines, as has been expressed in the report given to this committee—a pipe line from Skagway to Whitehorse and the distribution lines and these other facilities to handle products moved up, either in tankers or in barges on the inland waterway, and that was necessary. This 3,000 barrels was not a drop in the bucket. You had to have it. If you couldn't get it by sea, you had to get it by air, or you had to get it from this source.

Senator CONNALLY. Mr. Chairman, what is the plan of the committee, to meet again this afternoon?

The CHAIRMAN. I would like to finish with General Carter if the members of the committee will stay with me.

Senator CONNALLY. I am going to have to go and I want to apologize to General Pyron for leaving.

General PYRON. That is all right, Senator.

Senator CONNALLY. But I think the General is entirely capable of taking care of himself.

The CHAIRMAN. We are trying to get the facts for this record.

Senator CONNALLY. He will tell you the facts.

Mr. FULTON. General, do you mean that at the time the Standard Oil of California wrote that, which would be June of '42, that you concluded that by the time this refinery would begin to produce its first drop of gasoline at the rate of 479 barrels a day sometime in 1944, that it would be impossible for us to slip an occasional tanker

¹ See Exhibit No. 1141, appendix, p. 9889.

up the inland passage as far as Skagway? Is that what we are to understand?

General PYRON. No.

Mr. FULTON. I mean, did you ever formulate an opinion on this or was that a function of someone else?

General PYRON. It was a function of the engineers to decide, and the joint chiefs of staff, and the plans division, but all those things that they spoke of were done except in a lesser degree.

Mr. FULTON. I am talking about your own position. They never asked you to formulate that opinion and you never formulated it, did you?

General PYRON. Not the opinion of building the line.

Mr. FULTON. I am talking about the opinion of whether we couldn't more economically, even more militarily feasibly, get gasoline up the inland passage in '44 than we could spare the transportation to bring all these facilities up in '42. That wasn't a function on which you were asked advice, was it?

General PYRON. No. I was asked about the advisability of bringing up, laying this line from deep water, and getting the gasoline up and distributing it. That would fit into the total plan because the facilities that brought it up from Skagway, for example, could be used in delivering product from this plant back to the ocean.

Mr. FULTON. In other words, you mean that, in effect, the plan of the Standard Oil of California was adopted, not exactly as recommended, but in substance, and you now have a \$35,000,000 portion of this \$135,000,000 project which does consist of receiving facilities at the inland passage and distribution facilities between Watson Lake and Fairbanks and points en route?

General PYRON. That is right. It is a part of the present entire transportation system up there, and it is today in such condition that it can be expanded both as to volume and distance.

Mr. FULTON. So that in addition to adopting, in effect, as a part of the Canol project, the Stefansson Route C of Great Slave Lake and the Mackenzie River, we have also built something which in substance provides what was suggested by the Standard Oil of California.

General PYRON. The Stefansson suggestion about moving materials to the Norman Wells area was the only practical method. There wasn't any alternative on the east end. The material had to come down through the Great Slave Lake and Mackenzie River. As to the Standard's proposal; that, of course, was a part of the Army's transportation plan, and was being considered before the Standard's suggestion was made.

Mr. FULTON. Now, just two more questions. One would be this: You don't disagree with the Standard Oil of California, the contractor, and the architect-engineer as to the fact that the quickest way to get oil up there in quantity would be that particular project?

General PYRON. We could have done what they proposed quicker and at less expense, but you then would have compelled in 1944 and '45, and the balance of the war, whenever that is—you would still be tied down to a source of supply from California that was very, very vulnerable, and is today, to attack.

Mr. FULTON. You are expressing an opinion on that. Did you ask the Navy whether they thought they would be able to protect the inland passage in 1944 and '45?

General PYRON. We didn't ask the Navy that.

Mr. FULTON. You were just assuming it might not?

General PYRON. Here was a source of oil on the mainland where apparently the Air Force and Army would be. It would be a protection to those troops and to that airport in the event that anything should happen to interfere with the supply from other sources.

Mr. FULTON. In other words, you assumed, first, that if the Navy couldn't protect the inland passage, even in 1944 or '45, somehow this would be of use to you because you assumed that the Japs wouldn't go the extra 150 miles and bomb the refinery. Did you make that assumption?

General PYRON. It was not as vulnerable by any means as facilities on the shore line or moving out in the ocean, obviously.

Mr. FULTON. It was on the basis of that that you personally recommended this project?

General PYRON. I personally recommended the project because I thought the oil was there. It wasn't up to me—I am not in the Plans Division of the Army. They wanted to know if this 3,000 barrels were available.

Mr. FULTON. That is all they asked you, and all you told them, in fact?

General PYRON. Yes, sir. I am not in the plans, and I don't know what their plans are finally, except logically we can see how this would fit into a military plan.

Mr. FULTON. The other question was, Has the Army now got plans to expand this project and build a bigger refinery and bigger pipe lines? Is there a directive out to that effect?

General PYRON. No directive that I know of.

Mr. FULTON. Are you planning such a project?

General PYRON. I know nothing about it.

Mr. FULTON. Do you know of anyone who is planning it?

General PYRON. There is a directive to attempt to get 20,000 barrels' production, and there is a directive, I presume you would call it, to utilize that production if found.

Mr. FULTON. You mean that over and above the 135 million, there is an expectancy of building another refinery and another pipe line?

General PYRON. That I don't know in detail.

Mr. FULTON. How many millions would that cost and how long would that take?

General PYRON. That is something that would require some little time to figure the cost.

Mr. FULTON. That is all.

The CHAIRMAN. Did you have a question, Senator?

Senator BALL. General, as I understand your testimony, you were never asked to pass on this complete Canol project, certainly not in that April 29 meeting. All you were asked was whether in your opinion as an oil man there was a good possibility of getting 3,000 barrels a day out of this field.

General PYRON. That was right at this early meeting in '42.

Senator BALL. Were you ever officially asked to recommend this Canol project, to pass on that, as against any other method of getting oil and gasoline up there?

General PYRON. Not in that respect; no.

Senator BALL. Were you ever asked to pass on it in any form?

General PYRON. That wasn't a decision for me to make. Higher authorities, when they were told the oil was there, made the decision to utilize it if possible, and I assume they had the facts before them. Certainly when the Joint Chiefs of Staff, as late as October, directed the Army Service Forces to continue the program, they must have had facts and must have had figures.

Senator BALL. Did they ever consult you as the chairman of the Joint Petroleum Board, as to just how much effort, how much transportation, how much critical materials would be involved in this construction of the refinery?

General PYRON. No, sir, not in detail; but there was—for example, the Joint Staffs formed this year what is known as a Joint Production Survey Committee for the purpose of making surveys of all Army contracts and facilities to see what could be eliminated or reduced. I happen to know that in that survey, a subcommittee of the Joint Chiefs inquired quite deeply into the Canol project, and I did appear before that subcommittee and gave them the benefit of what information I had and my thoughts as to the project. Therefore, I assume the Joint Chiefs of Staff must have had——

Senator BALL (interposing). When was that, in October?

General PYRON. September or October of this year.

Senator BALL. This year?

General PYRON. Yes, sir.

Senator BALL. That is after it was well under way with a tremendous investment?

General PYRON. That is right.

Senator BALL. What I am trying to establish is that in the beginning no experienced oilmen were consulted by General Somervell, or whoever O. K.'d this project, before deciding on this refinery and pipe line as opposed to the possible alternative of bringing oil supplies up there, and again they did not consult you on that angle.

General PYRON. I don't know whom General Somervell consulted, but if you understand the Army's method of operation——

The CHAIRMAN (interposing). We don't. That is what we are trying to find out.

General PYRON. Let me explain this. I think it will clear this thing up. They issue this directive. Then, if they haven't information and facts to go ahead with that directive, they go out immediately and get them. I happen to know because——

Senator FERGUSON (interposing). General, do you get the facts down in writing so that someone can see later what they acted upon in the Army?

General PYRON. Not altogether during war. We don't have time to do very much writing. But if I can just explain what happened in this case—immediately when the engineers were given that directive they got in touch with the best men—pipe-line men, refining men, and production men—some of whom they found in the Army, and got them up there, and got them in the office here.

Senator BALL. Yes; but, General, that was after the directive was issued, and they were consulted as to how they should carry out the directive, not as to the wisdom of the directive.

General PYRON. Right.

Senator BALL. That is what gets me about this case. They issued a directive first, and they never explored the alternative fully, as near as I can figure out.

General PYRON. Let me explain.

Senator BALL. They simply went ahead and got the information as to what they had to do to carry out the directive.

General PYRON. Let me explain here that perhaps my personal opinion on the 3,000 barrels was accepted by somebody, whether it was General Somervell—

Senator BALL (interposing). You are dead right. In fact, you were conservative on this 3,000.

General PYRON. Suppose I had been wrong; suppose after drilling five or six wells, I, as an oilman, and as an Army officer, determined in 60 day or 90 days that it wouldn't produce 3,000 barrels; then it would have been my duty as an Army officer to go to General Somervell and to Under Secretary Patterson and say to them, "This field, in my opinion, will not produce 3,000 barrels a day," and then they would have stopped it quick.

Senator FERGUSON. Are you sure about that?

General PYRON. I am confident they would. I have that much confidence in the high-ranking officers of this Army. I know they are fine men, and they are doing an honest job.

The CHAIRMAN. We are not questioning that at all, but I say the taxpayer probably would have been better off if your prophecy had been a bad one, although it might have been a bad reflection on you. I am glad it wasn't.

Senator KILGORE. Mr. Chairman, I have a few questions I would like to ask.

General, I believe in the previous hearings in executive session you told us that your particular line of work with the Gulf Refining and others had been production and transportation—that you had not been a refinery man.

General PYRON. Those were my principal duties. I had connections with and had to know something about refining.

Senator KILGORE. Who else down there is a production man of the type of experience of yours? Who has had wide and varied experience with production on the staff down there or connected with this project?

General PYRON. Well, there is nobody.

Senator KILGORE. You are the only practical oil man in the bunch, is that right?

General PYRON. I had had more experience; yes, sir.

Senator KILGORE. I was wondering if after that meeting—I am not talking about at the meeting of June 29, whenever it occurred in 1942—you were consulted about the Noble drilling contract, the contract with the Noble Drilling Co. on drilling those wells?

General PYRON. The engineers made that—

Senator KILGORE (interposing). What I mean—

General PYRON. And I was consulted finally in connection with some features of it.

Senator KILGORE. But were you consulted as to the question of prices?

General PYRON. The price to be paid them; yes, sir.

Senator KILGORE. Did you think that \$2,900 fixed fee plus all costs for a 1,200-foot hole was a reasonable profit on those wells for the Noble Drilling Co. on the basis of 100 wells?

General PYRON. I don't think you can figure it down to a well basis.

Senator KILGORE. Under the terms of the contract, if you had shut them down at 10 wells they would be paid on the basis of the number of completed wells.

General PYRON. That is right.

Senator KILGORE. The total fixed fee was \$290,000 for 100 wells, and they were approximately 1,200 feet deep.

General PYRON. May I explain that?

Senator KILGORE. Yes.

General PYRON. These rigs of the Noble Drilling Co. shipped in there were heavy-type rigs and were to be used not so much right in that field but in drilling slant holes under the river and drilling other adjacent structures which might have been 8,000 or 10,000 feet deep.

Senator KILGORE. That equipment that went in belonged to Noble Drilling Co., that drilling equipment.

General PYRON. It belonged to them originally; the Government took it over, I believe.

Senator KILGORE. Did the Government buy it from them?

General PYRON. Yes.

Senator KILGORE. So then their investment was nil as to equipment, except that they turned their equipment over to the Government and were paid for it, either upon rental or cash price basis. Isn't that right?

General PYRON. Yes, sir.

Senator KILGORE. And all labor costs were paid by the Government and transportation costs and everything else. The question in my mind was whether you were consulted as to whether or not a net \$2,900 was a reasonable contract based on that large a number of wells and that shallow depth, even if the heavy equipment went in. Of course, you must realize the heavy equipment would cut down the time of drilling and was advantageous to have in there because you might want to go deeper, and I am not criticizing that feature. I just wondered if you were consulted on that price.

General PYRON. I was consulted about the fee, and at that time—what that contract amounts to, Senator, is this: If the 100 wells were completed, it is about as near as could be estimated about 5 percent of the cost, which doesn't seem excessive. If the Army stops this project at any time before they have completed that contract—

Senator KILGORE (interposing). They claim pro rata—

General PYRON. Conceivably as of today, for example, if the Government canceled it the Noble Drilling Co. would be the loser, because they in the meantime have used their staff for perhaps a year or more assembling the men, assembling the materials, and they have gotten very little money back. They get their money only after completing wells. So I personally do not think that contract is excessive as to the amount they receive and which, if it is stopped, could result in a loss to them of time and profits they might have made if they had those rigs today in the United States where there is an active demand for them.

Senator KILGORE. Did you ever go into the proposition of line breaks from expansion and contraction of that pipe line in the severe cold and changes of temperature that occur in those mountains?

General PYRON. The engineers have studied that very carefully, I understand.

Senator KILGORE. Haven't they had a lot of line breaks in their product line up there, line breaks that wasted a whole lot of gasoline in the wintertime at various times?

General PYRON. I don't know that it has been excessive. I know the engineers in planning this line—it is laid on the surface——

Senator KILGORE (interposing). I know.

General PYRON. If you put it in a trench, you would expect a lot of trouble, but it is on the surface and has the insulation of the snow on top of that. In addition to that they laid it in a snake fashion, that is what they call it, to allow for the expansion and contraction of the lines. There will be breaks, there is no doubt about that. There will be plenty of them.

Senator KILGORE. You have plenty of breaks and they will be very expensive to repair due to the isolation of the various lines, isn't that a fact, too? And, also, there is the liability of having pretty heavy losses of oil products from them.

General PYRON. You wouldn't lose much from a 4-inch line. Your station pump to it would get the pressure dropped in 5 minutes, and then you have so many hills and valleys you would only lose the amount that would gravitate from the top of the next hill.

Senator KILGORE. At that meeting—getting back to the meeting—was the question of the refinery location at Fairbanks ever discussed?

General PYRON. Not at that meeting; no, sir. It was discussed later.

Senator KILGORE. Discussed later?

General PYRON. Yes.

Senator KILGORE. It just wasn't brought up at that meeting that Stefansson had recommended the location of the refinery at Fairbanks, was it?

General PYRON. It don't recall that it was. I know it wasn't discussed, at least in a serious vein, until some time later. Whether it was that day or the next day or a few days, I can't recall, and we have no record.

Senator KILGORE. Was there brought out also in that meeting the possibility of an extensive oil-field development in the Alaskan Peninsula that could also be handled out of Fairbanks if this other field didn't develop, or something of that kind, if the refinery had been centrally located between the two fields? Was that ever discussed?

General PYRON. It was discussed briefly; the indications in the Alaskan Peninsula.

Senator KILGORE. That was Naval Oil Reserve, wasn't it?

General PYRON. No, sir. Navy Strategical Reserve. It was owned primarily by the Department of the Interior.

Senator KILGORE. Yes.

General PYRON. They had a number of wells drilled, all of which had been failures from the commercial viewpoint, and the old Katalah field had been abandoned, and there was nothing there that gave promise of any substantial amount of production. Yet it is possible there will be.

Senator KILGORE. Yes. Does that formation at Norman wells dip toward the Alaskan Peninsula or arise toward it?

General PYRON. It dips to the west.

Senator KILGORE. It dips to the west, which, of course, would make deeper wells in the Alaskan Peninsula if you hit the same formation.

General PYRON. The formation in the Mackenzie does not exist on the other side.

Senator KILGORE. It doesn't?

General PYRON. You have intervening volcanic formations.

Senator KILGORE. Isn't it also a fact that the pipe line laid at Fairbanks would be practically a water level grade rather than crossing any mountains?

General PYRON. No; not at all.

Senator KILGORE. It isn't?

General PYRON. No, sir. It crosses practically the same number of mountain ranges. The only difference is that you have a lower passage.

Senator KILGORE. I am glad to hear that, because I had heard that they could hit the Yukon without crossing the high mountains in the direction of Fairbanks.

General PYRON. All of the maps I have studied—I don't know a pass in those mountains at less than 3,000 or 3,500 feet above sea level. As I recall, Dr. Stefansson said he had been over one pass and he said 3,300.

Senator KILGORE. How high are the passes going directly to Whitehorse?

General PYRON. I think they are as high as around 4,000 or 4,500 feet.

Senator KILGORE. All right.

General PYRON. I haven't the full information on the profile of that line.

Senator KILGORE. All right. That is all I wanted to ask. Thank you.

The CHAIRMAN. We have just two or three questions to ask General Carter. Let's finish and then we will be through until after Thanksgiving. I want to apologize to General Carter for calling the brigadier general first, but it was at the request of the Senator from Texas. We had said that we would call you first.

Proceed with the question, Mr. Fulton.

TESTIMONY OF MAJ. GEN. ARTHUR H. CARTER, GENERAL STAFF CORPS, FISCAL DIRECTOR, ARMY SERVICE FORCES

Mr. FULTON. Would you give your full name and position?

General CARTER. Arthur H. Carter, major general, General Staff Corps, fiscal director, Army Service Forces.

Mr. FULTON. I understand that before coming to the War Department you were senior partner of Haskins and Sells, is that correct?

General CARTER. I was; yes, sir.

Mr. FULTON. And this conference of April 29, 1942, was held in your office?

General CARTER. That is right.

Mr. FULTON. At your invitation?

General CARTER. At my invitation?

Mr. FULTON. At your invitation.

General CARTER. Partly.

Mr. FULTON. Could you tell us how it happened that you got connected with this project?

General CARTER. I was asked by Dean Graham to request the best experts of the Imperial Oil to come to Washington for the conference. That, I did. The others at the conference were there, I presume, at Dean Graham's original request. I may have notified them of the conference.

Mr. FULTON. Why would Dean Graham come to you to find out who the experts of the Imperial Oil would be?

General CARTER. I don't know why he came to me except perhaps he thought I might know how to get in touch with them.

Mr. FULTON. How did you originally first hear of this project?

General CARTER. I heard of it first on March 31 in a tentative way.

Mr. FULTON. From whom?

General CARTER. Colonel Graham and General Browne came to my office with a question in connection with the highway, and during that conference on the highway, oil at Norman wells was mentioned.

Mr. FULTON. Why did they come to a man of your profession in connection with an oil project or a highway? I mean you are an accountant, one of the leading accountants in the country, but I don't quite see why they came to you with respect to this particular problem.

General CARTER. I don't know why.

Mr. FULTON. Had you had any prior discussions of this with anyone outside the Army?

General CARTER. No.

Mr. FULTON. How did you happen to know who the people from the Imperial Oil would be or where you could find them?

General CARTER. I knew the Imperial Oil was a subsidiary of the Standard of New Jersey, and I called the Standard of New Jersey and arranged through Mr. Holman to have these experts in Washington for the conference.

Mr. FULTON. Had you ever previously had any discussions about Norman wells with any representative of either the Imperial Oil or the Standard Oil?

General CARTER. I may have; not prior to the first date I knew about it, but I may have had some discussion with Mr. Teagle in trying to find these experts.

Mr. FULTON. Mr. Walter Teagle?

General CARTER. Yes, sir.

Mr. FULTON. What is his position with the Standard of New Jersey?

General CARTER. I believe he is entirely retired now and has no connection with them.

Mr. FULTON. At this meeting which took place in your office, did you have any function on behalf of the Army other than that of complying with the request that you obtain the attendance of the experts of the Imperial Oil Co.?

General CARTER. None whatever.

Mr. FULTON. That is all I have.

The CHAIRMAN. Any questions, Senator Kilgore? Senator Ferguson?

Senator FERGUSON. When did Mr. Teagle retire from the Standard of New Jersey?

General CARTER. I don't know the date, but I understand he is retired.

Senator FERGUSON. Was he connected with it when you discussed this matter with him?

General CARTER. I don't think so.

Senator FERGUSON. Your judgment didn't enter into the granting of the directive or the making of the directive.

General CARTER. No.

Senator FERGUSON. You don't claim that your judgment was used.

General CARTER. No; I don't think so.

Senator FERGUSON. You weren't consulted.

General CARTER. I don't think so.

Senator FERGUSON. Except to get the two men in; is that all?

General CARTER. I listened.

Senator FERGUSON. Well, did you give your judgment?

General CARTER. I perhaps talked with Dean Graham about it.

Senator FERGUSON. You say you talked?

General CARTER. Yes.

Senator FERGUSON. Did you give him your judgment on it?

General CARTER. I don't recall that I specifically gave him my judgment, but I would have if he had asked me.

The CHAIRMAN. I have been rather discourteous to the Delegate from Alaska. I forgot to ask you if you wanted to ask either one of these gentlemen any questions, Mr. Dimond?

ANTHONY J. DIMOND (Delegate, Alaska). No thank you, Mr. Chairman, I have no questions.

The CHAIRMAN. The committee will stand recessed until the call of the chairman.

(Whereupon, at 1:25 p. m., the committee adjourned subject to call of the chairman.)

INVESTIGATION OF NATIONAL DEFENSE PROGRAM

MONDAY, DECEMBER 20, 1943

UNITED STATES SENATE,
SPECIAL COMMITTEE INVESTIGATING
THE NATIONAL DEFENSE PROGRAM,
Washington, D. C.

The committee met at 10:55 a. m., pursuant to adjournment on Friday, December 3, 1943, in room 318, Senate Office Building, Washington, D. C., Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Tom Connally, Ralph O. Brewster, Joseph H. Ball, Carl Hatch, Harley M. Kilgore, and Homer Ferguson.

Present also: Senator E. H. Moore; Rudolph Halley, executive assistant to chief counsel; Hugh Fulton, chief counsel.

The CHAIRMAN. The committee will come to order. General, I believe you have a statement you want to make on the Canol project.

General SOMERVELL. Yes, sir; I would like to make a statement.

STATEMENT OF LT. GEN. BREHON B. SOMERVELL, THE COMMANDING GENERAL, ARMY SERVICE FORCES

ARMY'S JUSTIFICATION FOR THE PROJECT¹

General SOMERVELL. Mr. Chairman and gentlemen, I have looked over some of the testimony that has been given to the committee so far, and have talked the matter over with various officers in the War Department. It seems to me that the questions that raise themselves are five. First, whether the decision to execute the project was a sound one; second, whether the project is desirable; three, whether the work has been done competently; four, whether it is desirable to continue or enlarge the project; and, five, are the interests of the Government protected.

I would like to talk first to the first question: Was the decision to execute the project a sound one? It is quite difficult right now to judge the project in the light of present conditions. I think we have to go back to the situation at that time to get a picture of the real reasons for the adoption of the project. First of all, I should like to say that the project is not a commercial project in any sense. It was not conceived in that sense. It was conceived as a military necessity just as we build a shop or an airfield or a bakery or anything else to provide the materials of war at the place where they are needed. That is what it was. It was the supply of essential war materials, and petroleum production, as you know, is the lifeblood of mechanized warfare.

¹ See also letter, dated December 23, 1943, from Henry L. Stimson, Secretary of War, to Senator Harry S. Truman which appears in the appendix on p. 9915.

I was somewhat struck by the atmosphere in Washington when I returned about 6 weeks ago from a trip around all the battle fronts and then again last week when I got back from the conferences in Cairo and Teheran. The war seemed pretty far away here, and the ebb and flow of the tide of battle are not felt very acutely. The war is not so pressing; it is not so urgent, and the actual, essential character of war is not so evident. That is, the life and death of individuals and of nations and of our ideals and even our civilization are pretty far away from Washington. Other situations are crowding into our thought.

I am glad to know that we have the opportunity to think about these things, but the reason for it is thanks to the success of your armed forces, and thanks to our ability to lay down the sinews of war when and how they were needed, and thanks to the energy of the armed forces that did it, and thanks to the support that Congress has given us—support that has made it possible to get us a united and all-out effort to back up these armed forces.

That situation that I described as being the attitude here in Washington now was not the situation that existed in the winter and spring of 1942, not by any means. I would like to sketch for you briefly the situation as it existed in those days, and they were dark indeed, in order to give you a picture of just what was going on.

You no longer hear the expression "Too little and too late," but you heard it often enough in the spring of 1942. It was too little here, too little there, and it got where it was needed too late. I am not saying that to reproach anyone, but I merely want to fix it in your minds that it was the situation and that those were desperate days indeed.

I think back to December 1941. We lost our fleet. Our fleet as an offensive weapon was out of the picture for months to come—out of the picture. Remember the paralyzing effect that had on everything. Remember what it did to the country. Remember what it did to the armed forces. We lost Guam and Wake, and the British lost Hong-kong; in January and February we lost Manila, Singapore fell, and the Japs won the Battle of the Java Sea. That very month a Japanese submarine shelled the refineries on the California coast.

What happened in March and April? We lost Java; Rangoon fell, and Bataan surrendered. It surrendered primarily because we did not have the force to get in there with the supplies that were necessary to relieve them. It was not lack of courage or leadership; it was primarily because we could not give those men the supplies they needed.

May brought about the fall of Corregidor, but after that we had successes at Midway and the Coral Sea. However, the British lost Burma; the Japs were still moving west.

In June we repulsed the Japanese thrusts at Dutch Harbor and Midway, but the Japanese rolled on and they did take Attu and Kiska. They were finally established almost on the American continent. Again a Japanese submarine shelled the Oregon coast. In the East there wasn't very much to give us comfort either, except in Russia. The Russian winter offensive had rolled along and reached a climax in April and stalled and, as you know, that was shortly to be followed by the deep thrust that the Germans made in the direction of the Caucasus.

You would not forget the public anxiety on the east coast and the west coast, in fact, all over the country but especially on the west coast. There were counsels of despair all over the country during those early months. We did not pay much attention to those, but unfortunately the possibilities of raids on our west coast were not alarms but definite capabilities of the enemy. In the light of the raid on Ploesti I would like you to think for a minute just what would have been the situation had there been a blitz of the same kind on the industry in and around Los Angeles, particularly on the petroleum industry. Remember our situation with regard to the Panama Canal. I remember it very well. I remember the desperation with which we looked up some small ships to get out there to extend our defenses west of the Panama Canal. I remember the anxiety of the Secretary of War, who went personally to Panama to see that everything that could be done had been done to fix up those defenses.

Those things are all within your knowledge, except the Secretary's activities, but they are very easy to forget. What you could not know are the anxieties of those of us who had the day-to-day and the night-to-night job of building up a transportation system and trying to get these supplies out to these people who are fighting these battles for us and who were losing them every day. The effort to get ships of all kinds, supplies of all kinds, during those months was a tremendous affair. We were hanging airplanes on the davits of ships as they went out of San Francisco Harbor in order to get them on the boats and out there in time to do some good. You will never know the night-after-night grind that it was to get this job done, but we not only did the day-to-day job at that time, but we built the foundations of the supply system which is now stretched all over the globe. We laid the foundations for the production that is filling these supply lines.

Some members of your committee have seen some of that. They have been around the world and they have testified to me of the excellence of that system in the Service of Supply.

Let us look again at the background of this particular project. In January it was quite obvious that our garrisons in Alaska would need strengthening, and it was also quite obvious that they would have to have a secure line of communication. Alaska was the northern anchor of our westerly defenses. Air played a predominant part in that scheme. The security of the Pacific was in jeopardy, and also actual ships of all kinds—transports, dry cargo, and tankers—were in desperately short supply. The air route was established in order to get the planes into Alaska. Arrangements were made with the Canadian Government to build certain air fields along the route in Canada and arrangements were made to project that on into Alaska. We were studying this during January. That culminated in a memorandum which was sent to the Chief of Staff, acted on by the Secretary, and finally approved by the President on February 11, authorizing the construction of the Alcan Highway. A railway was considered as an alternative to the highway. It was touch-and-go as to what we would do; anyway, the highway was decided on and the highway was built.

The gasoline requirements on the highway were large. During a part of my early service I was a member of the expedition which chased Villa into Mexico. My job at that time was the construction and operation of a part of the highway that went down into Mexico. It was the first time the Army had had motor transportation of any con-

siderable amount. I learned a lot about the business, formed some impressions that are still very vivid in my memory. Among others was the terrific amount of gasoline, oil, and other petroleum products that were necessary for the operation of that highway. So almost simultaneously with the consideration of the highway came a consideration of how we were going to handle the operation of the trucks on the highway, and how we were going to get the gasoline and oil to supply it.

A very short calculation is necessary to demonstrate the large part of the cargo of the trucks that would be wasted if it were necessary for them to haul the gasoline to run themselves. At that time I was the chief of the section of the General Staff charged with handling such matters, and I gave the matter my personal attention.

Just about this time came the German submarine onslaught on our shipping. I have some charts here somewhere to indicate what was going on, but it is quite obvious there that in the over-all shipping position we were going in the red every month, going in deeper and deeper [referring to chart entitled "Axis offensive against shipping, spring 1942"]. Our relief was not in sight.

I would like to show you another chart showing the tanker sinkings. I have left the figures off the charts for reason of security, but I will be glad to furnish them to the committee. You will see there in the light-green area the total sinkings. Notice how they went up month by month [referring to chart]. The dark-green area represents the net losses; in other words, the remaining losses after deducting all of our gains through construction. Notice the flatness of the blue line. In other words, the slow increase in the construction of tankers which followed after April of 1942 is shown. Notice particularly the losses which have occurred every month on that chart, both before and after the day when the decision was made to go ahead with the project. This got so bad that finally tanker movements along the Atlantic coast were actually stopped for a number of days. Escorts were impossible to obtain. Our whole Caribbean shipping arrangements had to be recast because of the shortage of escort vessels and because of the perils of that route. Remember also that during that time, in the Caribbean, the Germans shelled the refineries at Aruba and also sank a number of tankers.

How long was that going to last?

Senator CONNALLY (interposing). Just a moment. Escort vessels were warships?

General SOMERVELL. Yes. How long was that going to last? What could we do about it? Escort vessels were not available for convoys everywhere, and increased tanker capacity was a long way off. The capacity of the shipbuilding industry was limited by the facilities available, and what could be done to enlarge it? There was need for far more shipping than could be produced—that is, shipping for the Navy, landing craft, dry cargo vessels, tankers, barges, and tugs. There was nothing in sight that could possibly make good our losses within a long period of time. I talked this matter over with Admiral Land and Admiral Vickery, and finally the shipbuilding program culminated in a discussion in the President's office, where he made the decision, and where it was quite evident that it would be impossible to produce anything like the shipping which the Army was demanding.

We did not have ships alone to look out for. We had other things.

There was no use getting ships unless we had materials to put in the ships, and vice versa, so the whole program had to be balanced. I was familiar with the whole thing, and it was quite evident to me that our relief in the way of shipping was a long way off.

During the period of consideration of the highway—that is, in January, February, and March—and the highway was approved on February 11—the question of oil supply, the question of gasoline supply, were discussed pro and con many times. The value of the local supply was quite obvious. The impossibility of moving material there was patent; and if we could by any chance get a supply close at hand, obviously, it would have been a godsend. It so happens that in 1933 and 1934 I was making a general economic survey of Turkey for the Turkish Government. Associated with me at that time was Mr. Sidney Paige, a distinguished geologist, who had made the explorations for oil in Alaska with Mr. Brook, particularly in the Point Barrow region. Everything connected with those far northern regions has a certain amount of adventurous appeal, and I listened very carefully to Mr. Paige and his description of the oil resources in Alaska, and particularly his own work in the Point Barrow region. I knew about those. Point Barrow was too far off. It is clear up on the topside of Alaska. Other prospects along the south coast of Alaska were too exposed and too uncertain.

General Pyron, who is our oil expert—and he is the best; certainly if not the best, then one of the best not only in the United States but in the world—in civilian life his business was to know about all of these oil deposits. His business was to keep in touch with it. He knew about the Norman wells field and had known about it since about 1938 or 1939. He had discussed the matter with an official of the Humble Oil Co., who had actually visited the field and knew what he was talking about. In addition, Mr. Stefansson had argued for a route which ran along the MacKenzie River rather than the route which we finally adopted for the Alcan Highway, and one of his reasons was the location of the Norman wells along that route.

We also had Colonel Graham. Colonel Graham is an officer with whom I had been associated in the last war. He is a man of outstanding ability, character, and experience, and he and I had discussed the thing at various times. I had also probably discussed the matter with General Gerow, who was head of the War Plans Division of the General Staff at that time, and probably with General Eisenhower who came along, and later succeeded. I know I discussed the matter with General Crawford, who handled the matériel part of the War Plans Division of the General Staff. You have had General Streett up here and have talked to Colonel Graham. General Streett was one of General Crawford's assistants.

I think it is quite obvious to anyone with half an eye that oil along that route would have been a godsend. It was likewise obvious to anyone that oil in Australia would have been a godsend. [Referring to chart.] I just wanted to point this out. The Germans made a definite and desperate attempt to interrupt our oil supply and our oil tankers. Those different colored marks on the map there show where their attacks were most intensive. The tankers they sank represented about half our tanker fleet. They hit the place that they could hit, and, as you see, they hit it pretty hard.

During this period we were losing the Dutch East Indies very rapidly and that was followed by the Japanese invasion of New Guinea and their occupation of practically the entire island. Our forces were being backed into Australia. The route to Australia was the longest route we had, one that occupied most of the shipping.

Obviously, if we could develop a source of oil in Australia it would have been of the greatest value to us then and now. The reports that General Pyron gave me on Australia were completely discouraging. There did not seem to be any possibility of getting anything there. New Guinea was either in the hands of the Japanese or else the possibilities in New Guinea were in too precarious a condition to consider doing anything there. However, there was a prospect of oil in New Zealand.

The Superior Oil Co. had outlined some prospects there and there seemed to be two that might be good. They were taken up by us with the Superior Oil Co., and it was thought best for us to help them with priorities and with materials, so that we could go ahead with that shipping. So to go over the whole situation, Point Barrow was too far north. The possibilities on the south of Alaska were too uncertain and too exposed. There was oil at Norman wells. There was oil of good quality and it was fairly accessible to the highway. In the east there was no oil—in Australia. We could not use New Guinea. There was a prospect for oil in New Zealand. On the 29th of April I issued the orders for drilling of the wells in New Zealand and for going after the oil in Norman wells.

I would like to invite your attention to some of the possibilities. As I told you the Japanese drive in Burma was still under way. The German drive against the Caucasus was expected to begin and did begin and did make a deep penetration toward the Caucasus oil fields. The thing that concerned all of us most is indicated by the arrows on that map [referring to map]. Had the German drive through the Caucasus been successful, had the Japanese gone ahead, you can see that not only we would have been completely at a loss with regard to the oil, but our Russian Allies would have been in a very precarious position, too. That question was discussed with a great deal of apprehension for a long time. Rommel was in front of Tobruk in April of 1942; it was but a short time after that that Tobruk fell, so you can see that we faced the possibility of not only losing what we already had lost in the East Indies, but of losing this other field as well.

I want to get back to the other proposition [referring to map of Alaska].¹ Both Colonel Graham and General Pyron warned me that the drilling at the Norman wells field might be disappointing. We knew there was oil there. We knew there was a small amount. Imperial's figures were around two or three million barrels. That was all that was guaranteed. We did not know whether we were going to get any more. We knew we could get 2,000,000 barrels and we were not sure what the actual field contained.

How did we decide on the size of the project? First of all, we had to base the project on the quantity of oil that might be developed in the field. I have told you that that was problematical. Second, I have explained to you at considerable length the great shortage of steel, the need for steel for ships and for other war products, and the

¹ See Exhibit No. 1100, appendix, facing p. 9855.

necessity for our conserving in every way the steel that was available in the United States for these products, so we cast around to find a size pipe that could be obtained from stock or dug up out of the ground without any further inroads on the steel supply, and that pipe is about 4½-inch pipe. The last thing that determined it was the refinery. We knew that the refinery itself would require a good deal of steel, require manufacturing processes which were badly needed for other purposes, and consequently we wanted to get a refinery which was actually built and which was surplus in some part of the country. We knew we could get a refinery of that small type.

The project, therefore, was circumscribed by those three factors: First, the size of the deposit of oil; second, the size of the pipe that we could obtain without inroads on the steel supply; third, the refinery which we could pick up second-hand for use there.

The next thing to decide was the sequence of operation. How were we to go about this job? Were we to go ahead and drill and wait until we had proved that the oil was there in quantity before we did anything else? Were we to make careful surveys of the route before we authorized the laying of the pipe? Were we to do all of the things, in short, that would be done if this were a commercial venture and if you had plenty of time to work it out? On the other hand, were we to get ourselves in a position, if the oil came in, where we could deliver it when we obtained it?

I would also like to invite your attention to the fact that this was late spring. This was getting along toward the end of April, and the open season in the North was just beginning. If we wasted any time in surveying or in prospecting our opportunities to get the material into Canada where it was wanted would be very greatly decreased. The Japanese were still advancing. Alaska was under threat. We needed the oil and we made the decision.

I might say here that the decision was not a hard one. Everything seemed to point so conclusively to the desirability of having oil on that line that it looked as if this was a very admirable thing to do.

There has been some discussion before the committee as to whether this project was presented to the General Staff. I want to repeat that I was the chief of the section of the General Staff that considered this matter up to March 9. After that I carried on over on this matter with discussions with the operations division of the General Staff. I would like to say that it was discussed with the O. P. D. I would also like to say that it was reported to the Chief of the General Staff, General Marshall. It was a question of whether we should use the tonnage to move things out to New Zealand when the tonnage was so desperately needed for something else, and that question obviously was laid before him.

I would like to say that the matter was reported at a War Council meeting to the Secretary of War, the Under Secretary of War, the Chief of Staff, General Arnold, General McNair, and myself on May 11, so that any inference or statement that the matter was handled in a cavalier fashion, without reference to my associates or to my superiors, is utterly without foundation.

The question has been asked here as to why Mr. Nelson wasn't consulted. Well, in the first place, theaters of operation are entirely outside of the jurisdiction of Mr. Nelson's entire outfit. In the second place, there was no board or set-up in Mr. Nelson's organization at all

at that time which was in a position to help, and I am sure that Mr. Nelson, neither then nor now, has ever asserted any jurisdiction over anything outside the continental limits of the United States.

I have also been asked why I didn't consult Mr. Ickes. Practically the same thing is true there. The work was entirely outside of Mr. Ickes' jurisdiction. It is not within his province.

I would also like to add that we had all of the data which was available to the Geological Survey and to the Bureau of Mines, and that in the Petroleum Coordinator's Office, as it was called then, there were no production men who could have furnished any worth-while advice on the oil.

Mr. Ickes stated before your committee that he was not thoroughly familiar with the project. In short, there was urgent and even desperate need for oil in the general location of the Alcan Highway; the oil was at the Norman wells; it was of excellent quality, but in an indeterminate amount. Strategically, we were on the defense. Our shipping was dwindling rapidly and there was no relief in sight for an indeterminate period. I was sure of the final outcome of the war, but there was certainly no conclusive evidence even to that effect at that time. With all of the facts at one's disposal, the conclusion that the project should have been adopted at the time, even on hindsight, seems inescapable.

Now the next question is, Is the project feasible?

I am reminded, and I don't know whether I told you that New Zealand was decided upon the same day that this other project was decided upon. If I didn't tell you that, I should have. The whole thing was being carried along as a general consideration in the whole line from Alaska to the Far East.

The question is, Is the project feasible? We were told there wouldn't be any oil. We were told there was no oil supply. We were told that the oil wouldn't flow through the pipes after we built the pipe line; and we were told we couldn't build a pipe line, and we couldn't maintain it even if we did build it.

Senator HATCH. You mean that before you started the project, you were told these things?

General SOMERVELL. I was told the latter right afterward, along in May and June. On the question of oil flow, it was before the project; but on the question of our not being able to do it, it was after. In other words, the hazards of the project were played up to us very vividly during the weeks and months that followed the decision.

Senator HATCH. Would you mind telling us who played up those hazards?

General SOMERVELL. Mr. Ickes called our attention to them sometime later. The question of oil was played up by the oil companies themselves. Everybody who had ever run a cigar store in Alaska said we couldn't build a project, that the climate was too severe. In other words, we had counsels of that kind from a good many sources.

Now let's take up the question of oil supply. There is no question about our anxiety regarding the oil supply. I told you that so far as we knew, there was a limited amount of oil, and my memory is now refreshed to the fact that about 8,000,000 barrels was the figure which was given to us as a sure thing by the oil company at that time. Our anxiety was, Would there be enough oil? And suppose there was not enough oil, what should we do about it? Of course, there was only one thing to do, and that would have been just to fold up. It would

have been another defeat. That is exactly what did happen in New Zealand and we did fold up.

Fortunately, the oil is present in the Norman fields, not only in the quantities that we hoped for, which jumped from 2,000,000 to 8,000,000 barrels, but in quantities far in excess of our wildest expectation. This is not an 8,000,000-barrel field; it is at least a 58,000,000-barrel field, and probably a 100,000,000-barrel field. There are geological and geophysical conditions that indicate that other fields which we have discovered since in this general location will also bring in tremendous amounts of oil. In other words, what we have discovered is the biggest oil field that has been uncovered in the last 15 years. If that is a crime, we are guilty of it.

Senator BREWSTER. In the world, you mean?

General SOMERVILLE. On the North American Continent.

It was alleged that the oil would not flow through the pipes. Now, obviously, if we built a pipe line and the oil wouldn't flow through it, it would be a very unwise undertaking. However, we knew that the oil was of exceptional quality. We have had the oil analyzed as we have have gone along, and we find that it has a pour point of something like -72° . Now, the lowest temperature that has ever been experienced up there is higher than that, and the mean minimum run around only about 25° below zero. We had this looked into by a number of organizations, including the Bureau of Mines in the Department of the Interior, and their report is that it is an oil of unusually fine characteristics.

The next thing that was supposed to happen was that when the oil was pumped through the line, paraffin would be deposited in such quantities as to clog the line, and consequently it wouldn't operate. Paraffin, of course, is present in many lines. There are customary ways of removing it which are available here. In addition to that, we have unusual facilities in that we have a small refinery at Norman wells and we can put a slug of gasoline into the line at any time we want, to supplement all the other methods. We have sedimentation and the usual scrapers and go-devils that are used for that purpose; but I think we can dismiss all these fears and stop worrying about them, because we are pumping oil through the line now.

Senator FERGUSON. General, what part of the line are you pumping oil through?

General SOMERVILLE. From Norman wells. We started to fill the line on the 18th, and it is now 29 miles from Norman wells.

Senator FERGUSON. What is the temperature today?

General SOMERVILLE. Fifteen degrees below zero.

It has likewise been alleged that the line couldn't be constructed. Well, it is practically finished.

Next, it has been alleged that the line couldn't be maintained, once it was constructed. I would like to invite the committee's attention to the fact that the line from Skagway to Whitehorse, which is through the most rugged of all the territory, has been in use for over a year.

Mr. FULTON. That is a gasoline line.

General SOMERVILLE. It makes no difference, Mr. Fulton, what goes through the line. The point I am discussing is whether the line could be maintained intact. There is a heavy list of experts that say it will be maintained. That is in addition to the fact that it has been maintained for a year. We expect the customary difficulties. We

have them in northern United States, in Montana and Idaho with temperatures far below the mean minima encountered in this field.

I think, and most of the oil experts think, that the dangers to be expected from floods and things of that kind, which are encountered along all pipe lines, are probably more hazardous than what we have to expect up there. I would like to invite the committee's attention to the fact that our most recent and most spectacular pipe line, the Big Inch pipe line, which was built from Texas to the East, happens to run through my home town, Little Rock, Ark., and that the line was completely wiped out in Little Rock last year, and the Army went in and built the by-pass to get the oil through the line. It is something to be expected, and we can expect breaks in any oil line. However, we certainly do not anticipate any great difficulty maintaining this line, and our year's experience proves it.

We weren't content, however, to trust our own opinion. We have got expert, distinterested opinion which is available.

Senator BREWSTER. Has it been maintained through an Alaskan winter yet?

General SOMERVELL. Yes, sir; spring is the time when you expect trouble, and it has been maintained through the spring and winter.

Mr. FULTON. You don't mean the Whitehorse-Fairbanks pipe line which isn't finished yet?

General SOMERVELL. I do not. I mean the part of the lines from Skagway to Whitehorse, which is in the worst part of the country, both in regard to the weather and with regard to the land itself, has been maintained.

Mr. FULTON. That is along a railroad line, is it not?

General SOMERVELL. Most of it. But the people who are concerned about it are concerned about ground movements and things of that kind, which are alleged to tear the pipe apart.

Senator KILGORE. How many breaks did you have last year from contraction and expansion.

Brig. Gen. L. D. WORSHAM (division engineer, Northwest Division, United States Army). The first was in May of this year, May of '42.

Senator KILGORE. You had one?

General WORSHAM. Yes, sir; the first break.

Senator KILGORE. When did you start operating?

General WORSHAM. January 20, 1943.

General SOMERVELL. I think we can dispose of these things. All of these hazards have been successively razed: First, "we will have no oil" (we have struck a bonanza); secondly, "the oil won't flow through the pipe" (it is flowing through the pipe); third, "you can't build the line" (it is being built, practically finished); and fourth, "you can't maintain it" (and we have maintained it for this length of time). And our contractor, the California Standard Oil Co., has no qualms whatever about operating the line.

The next question, "Has the work been done competently?" It hardly seems necessary for me to mention this. The job along the Alcan Highway and many others that we have undertaken were rated as impossible. Well, they have been done, and they have been done, I may say, with the admiration of professional and lay groups. This job, from the point of view of engineering accomplishment, ranks along with a lot of others. It certainly is no less noteworthy as a bit of engineering skill and daring and ingenuity and organization.

It has been done by the Corps of Engineers of the Army, and there is no organization in this country or elsewhere with a record to excel it.

We could have finished this job sooner. There were, as you know, a number of changes in the local and in the general situation which made it unnecessary for us to have pushed the job to the extent which we would have, had the Japanese been successful in Alaska. We could have shoved the refinery in sooner, and we could have left some troops along the route which we removed for more urgent work elsewhere. However, a very workmanlike job has been done under extremely difficult conditions, and it has been done in an extremely short time. And I should say that all of the people who have been engaged in the construction (I haven't, so I can say this freely) deserve the very highest praise.

The next question is whether the decision was right or wrong. We have got this project to the point we have. Should we finish it or should we enlarge it?

Now, whatever may be the right or wrong of the original decision—and it seems abundantly clear to me that we were right—we have to answer that question, "Shall we finish it or shall we enlarge it?"

We are no longer on the defensive. We are no longer being crowded against the wall. We are pushing the offensive in all parts of the globe, and that is due to a number of things—among others, to the leadership of our Chiefs of Staff and our leaders in the field, and to their well-equipped troops in every corner of the globe.

Now we are on the offensive and no stone must be left unturned to make it possible for us to move against the enemy everything we can in overwhelming force.

The Chiefs of Staff have considered the position of the Northwest in the strategy they are pursuing, and they have considered the position of this project in the Northwest, and we have decided that the project is essential. Since that decision, they have had an opportunity to review their strategy with that of our Allies during the last month. That review has served only to strengthen the position which they had previously taken.

I have told you in secret what I could of those plans. I believe that it would be a very reckless man indeed who would question the strategy that has pulled us up from the position we were in in April 1942 to the present, through an almost unbroken series of successes, and a strategy that is going to lead us to victory.

The decision of these men is to continue the project as essential to the war effort. We can, however, look at some of the facts right here. I have told you that the oil is the lifeblood of mechanized warfare, on land, on the sea, and in the air. We need it and we must have it, and every schoolboy knows there is an over-all shortage of gasoline. Any addition to our gasoline supply and our oil supply is of the utmost value. Our Army and Navy Petroleum Board has determined the situation with regard to the armed forces and has reviewed that situation with the Petroleum Administration.

Now we are short with regard to certain types of gasoline that are going to be produced in this particular project, particularly short of high-test gasoline. The War Department has been asked by Mr. Byrnes to participate with representatives of the Navy Department and the War Production Board in an effort to expedite the completion of the high-octane-gas program. It is behind schedule, and every-

thing must be done that can be done to complete the work that is contemplated.

We are not only short of petroleum products, but we are short of crude oil. I would like to read you gentlemen a few extracts from an article which appears in the American Magazine just out, January 1944, written by the Petroleum Administrator [reading Exhibit No. 1143]:

Let us make no mistake about it. The accessibility of oil to the nations that want it after the war is going to be one of the most important and knotty problems that the Allies will have to face. As we begin to take stock of our own petroleum supplies, the first thing that arrests us is the indisputable fact that if there should be a World War III, it would have to be fought with someone else's petroleum, because the United States wouldn't have it.

We know now that we are passing over the threshold from an oil-exporting nation to an oil importing one. * * * our reserve position is such as to alarm the experts who keep their eyes on such things and know what the signs portend. * * *

* * * American oil industry will gradually but inevitably migrate abroad. The capital of the oil empire is on the move to the Middle East, to the Persian Gulf and the countries adjacent thereto, such as Arabia, Iraq, Iran, Kuwait, Bahrain, and perhaps Afghanistan.

Nor is it traveling on a camel. If we are to maintain and extend our gasoline civilization, we must be prepared to go where gasoline is to be had.

I am speak objectively, not imperialistically, and with the fixed conviction that the petroleum of the world, as all other great natural resources, belongs to the people of the world on some basis that will be equitable. * * * As Petroleum Administrator I can say authoritatively that the petroleum which lies within our continental limits cannot be depended on to supply us forever, or even for long. On the contrary, we can now be certain that our known reserves have a relatively short expectancy of some 14 years, and it is up to us to take out some form of mutual insurance. * * *

Great Britain has been much smarter and more forehanded than the United States in acquiring oil reserves in all parts of the globe.

Senator BREWSTER. Do you agree with that statement?

General SOMERVELL. If I have to answer it, I will, sir. I would rather not.

Senator BREWSTER. We excuse you.

General SOMERVELL (continuing reading):

So badly has our natural crude supply been hit that there can be no doubt as to our future dependence upon imports or synthetic production—

Just one or two more here—

Not only must we store against the future necessities in our continental area, we must store largely in Alaska and in Hawaii and Guam and in all those small dots of atolls where our trans-Pacific airliners land and fuel. We must not neglect the Canal Zone or Puerto Rico or the north Virgin Islands. We must keep ample stores of necessary supplies to the airfields that we may own or possess under lease in all parts of the world. * * *

While we cannot foresee at this time just what international machinery will be set up or what alliances will be established, we can be sure that there will be, or ought to be, something in the form of a world league revolving around the hard core of an understanding. * * *

and so on.

But exhaustion, even if it is gradual, is the ultimate end of all petroleum fields, and the rate at which we have been exploiting and producing in this country is certain to bring us face to face with the inevitable, sooner or later. Those in Washington who have been looking ahead have studied what the English have done in foreign fields; what they have learned from that study is interesting and should, in my opinion, be considered for what it is worth. * * *

The Petroleum Reserves Corporation will attempt to explore and encourage the national interests of the United States in the petroleum fields of the world where private industry is willing to go and to propose safeguards for those interests.

And he goes on further. I think I have read enough here to show that there is no question about that.

I want to read a few more in another article by the same author in the December 4 Collier's [reading Exhibit No. 1144]:

It is true that our known oil reserves are equivalent to 12 or 13 years' consumption, at the pre-war rate of 1½ billion barrels a year, but these reserves can't continue to produce oil at that rate. The wells produce more slowly each year. This means not that we will be facing an oil shortage in 12 or 13 years, but that *we are facing one now.*

That is underscored.

We must find *new oil now*—
again underscored—

and continually in order even to maintain production at present levels. There can be no doubt that we are running short of the petroleum that nature made millions of years ago. Unless we understand this and take it to heart, we are headed for trouble, considering the rate at which we have been consuming this irreplaceable resource for the past 15 years. * * *

At the risk of being called a scarcity-monger, or something even worse, I insist that we must proceed without further delay to produce gasoline from coal, of which we have a tremendous supply, and from oil shale. I predict that we may live to see the end of the gasoline age unless we tackle this job objectively. * * *

(The articles referred to were marked "Exhibits Nos. 1143 and 1144" and appear in full in the text on pp. 9666 and 9667.)

Senator HATCH. In connection with that production from coal, are you familiar with the fact that the Congress has authorized the appropriation of \$30,000,000 for experimental work in the development of synthetic fuels from coal?

General SOMERVELL. Yes, sir.

Mr. Ickes says:

The Department of the Interior is supporting legislation before the Congress for \$100,000,000 with which to build and operate demonstration plants for producing on a small commercial scale gasoline and oil from coal and shale. In an era of billions, \$100,000,000 isn't much—

he said.

That is the only thing in the article, Senator Brewster, that I don't agree with. [Laughter.]

Now, what we have is an oil field. We are practically ready for the delivery of a small but substantial quantity of gasoline at a place where it is wanted, and not ten to fifteen thousand miles away. I think it would be the height of folly to throw away this supply which is in our hands, after months of effort, and after practically all of the materials have been assembled and the workmen on the job, in those inaccessible places in the North.

The cost of this project has been criticized. I would never say that \$100,000,000 is nothing.

Senator BREWSTER. You don't agree with Colonel Graham on that? General SOMERVELL. I don't agree with anyone on that.

How could we justify throwing away what we have spent when we have so great a prize—as I explained to you confidentially—within our grasp? We might as well have got off Tarawa after we had killed all but one squad of Japs as get out of here now.

Now, how do we stand? We have got from 98 to 99 percent of the materials on the job. All the crew is there. We began to fill the pipe line on the 18th, and the road parties on the last stretch of the

road are to meet today. Distribution lines are in operation and have been in operation from White Horse to Skagway, to Watson Lake, and part of the way up to Fairbanks. The storage is practically complete. Stage 1 of the refinery will be finished on the 30th of January; stage 2 in May. In other words, the thing is all but finished. The oil is actually flowing through the line from the wells toward the refinery.

Mr. FULTON. What would be the purpose of that, General Somervell?

General SOMERVELL. Of what?

Mr. FULTON. Of sending oil from Norman Wells 25 or 30 miles toward Whitehorse.

General SOMERVELL. It is going to go all the way to Whitehorse. It will be 81 miles on Christmas Day, and it will keep on going until it gets to Whitehorse, where it will be put in the refinery and refined.

Senator FERGUSON. Is that just filling the line?

General SOMERVELL. Yes, sir; filling and testing.

Senator FERGUSON. Just filling the line?

General SOMERVELL. Filling and testing.

Mr. FULTON. When will the pipe line be finished and the first drop of oil reach Whitehorse?

General SOMERVELL. Would you mind if I finished the statement?

Mr. FULTON. No; but I couldn't understand. Why put oil in a pipe line that wouldn't be finished for many months?

General SOMERVELL. That isn't true. The line will be finished before many months.

The CHAIRMAN. How soon will it be finished?

General SOMERVELL. I will give you the figure. The pipe line is expected to be completely welded by the 15th of January. Filling by crude to start by the 18th of December, with crude arriving in Whitehorse early in March, allowing for adjustments and repairs.

Mr. FULTON. That was in accordance with our information, that it would be the spring before the pumping station would be ready.

General SOMERVELL. You must remember that you have to fill the line before you can take anything out of the opposite end.

Mr. FULTON. Oh, yes. But you have to keep pumping it while it is in the line in order to keep it from settling down, don't you.

General SOMERVELL. I couldn't hear you. Would you repeat that?

Mr. FULTON. And you have to keep pumping it all the time that it is in the line, do you not?

General SOMERVELL. Oh, absolutely; if you want anything to come out the other end.

Mr. FULTON. No; but I mean if you don't want to clog up your line with paraffin you have to keep pumping your oil.

Senator KILGORE. Keep the oil moving.

General SOMERVELL. We expect to keep the oil moving. We have large stores in Whitehorse.

Mr. FULTON. In other words, you will pump it back and forth.

General SOMERVELL. No, No.

Mr. FULTON. You can't get it to Whitehorse until March.

General SOMERVELL. We are testing the line from the east, as I told you, and from the west with gasoline. The line will be tested, and the oil will be pumped through there and we will deliver oil to the refinery for refining purposes early in May.

Senator KILGORE. In other words, what is being pumped and put in it now is gasoline.

General SOMERVELL. No, sir. It is oil, crude oil.

Senator FERGUSON. Is the oil merely being put in the pipe line today for testing purposes?

General SOMERVELL. Testing purposes and filling.

Senator FERGUSON. Filling.

General SOMERVELL. On the money side of the project aside from the distribution lines, which haven't been questioned, as far as I know, there is about \$24,000,000 still on the books to be spent, and of this there is about eight and one-half million for further exploration of the field. If we stop, we could save about seven million of that. We have \$7,000,000 in there for demobilization. That will be spent whether we stop tomorrow or stop when the project is finished. That leaves only \$10,000,000 really which is in connection with this project as it stands now. In other words, \$10,000,000 is the figure that we are talking about.

Senator BALL. What is that seven million for demobilization?

General SOMERVELL. That means getting all the men and equipment out of there, returning them to the United States and their homes, and all the other expenses necessary for the clean-up of the job.

Senator BALL. That is an awfully large item for that. How many men have you up there?

General SOMERVELL. There are about 10,000 men.

Senator KILGORE. Does that figure include civilians and soldiers or just civilians?

General SOMERVELL. All civilians now, no soldiers up there now. At least, to answer your question, Senator Ball, whether we spent it or not, that amount is set up in the estimates for that purpose, and this \$7,000,000 isn't involved in any consideration that we have of whether or not to finish the job. That is the point I am trying to make.

So, we have \$10,000,000 to talk about.

The War Department has been asked to join in prospecting in Alaska with the Department of the Interior and a figure of \$5,500,000 has been set up as the cost of the exploration. If we went in there and if we spent the 5½ million dollars, and if we were successful, at a minimum it would be 12 to 18 months before we would get any oil. It probably would take a lot longer time than that actually to develop any field there which would be producing in quantity.

Now, the difficulties to be expected are comparable with those on this job. Remember, this is in Alaska.

Now, instead of getting oil for this 5½ million dollars, we may get nothing but dry holes. We want to do it—

Senator BREWSTER (interposing). In the Point Barrow area, do you mean?

General SOMERVELL. No. Point Barrow is way down on the list, priority 6 or something of that kind. Most of it is in the southern part of Alaska.

Now, we want to do this prospecting. We want to go into it. We want to develop all the oil we can. We want to get all the oil we can for this war. I don't know how soon the war is going to be over, and we also want a reserve for our use when the war is over. So we think the prospecting is all right. But considering it solely

now on the basis of the 5½ million, we are going up there, we are not going to get anything for at least 12 to 18 months, if we get it at all. What we want is oil now, and we want a certainty and not a promise and have it in this project.

We are urging developments in Persia, and Arabia, and Burma, and the East Indies. We want oil in all those places. We have lent-leased to the Russians and the British \$125,000,000 to get oil.

Senator BREWSTER. You mean that in equipment?

General SOMERVELL. Yes, sir. This project gives us oil and gives it to us right now, and it gives it to us where we want it and it holds promise backed by the most convincing geological and geophysical facts that it will be a tremendous field. To me, there is no question of completing the project. The only question is one of expansion.

Now, for the reason that I have given you, I won't ask your approval now for the expansion, but I think it is quite probable that approval for this expansion will be sought within a relatively short time.

The last question that I want to discuss is whether the interests of the Government were protected.

Our agreements with respect to this oil are of three types—first, with the oil companies; second, with the contractors; and third, with the Canadian Government.

With regard to the oil companies: The contracts have been explained up here at length and in detail. However, there are one or two points that have not been made sufficiently clear that I want to emphasize. When the work began, there was a question as to the quantity of oil that we would find, how much could we develop. The only estimates that we could get which were of value were from Imperial, and I told you that their figure was somewhere around two or three million barrels. We thought there might be more. We thought there might be eight, we thought there might be even more than that. There was a distinct possibility, however, that we might exhaust that field and all the assets of the company in it after withdrawal of the quantity of oil that was actually in sight. On the other hand, there was this possibility that greater quantities would be found. The geological indications were such that the results might go either way.

The contract was drawn to meet either condition. On one hand, though it did not give Imperial a complete return on its investment if only 2,000,000 barrels were lifted, it was not unfair. On the other hand, provision was made for renegotiation of the contract within about a year if conditions warranted.

Fortunately, the results have been such as not only to make it possible to produce the 8,000,000 barrels that we had hoped for, but about from 58 to 100 million barrels.

After proving the existence of a much larger field, renegotiations were initiated. First of all, we had to secure the permission of the Canadian Government, and we expect to obtain a reasonable, acceptable arrangement, and we know that the interests of the Government will be protected.

Senator FERGUSON. General, may I just inquire as to whether or not the renegotiations were started within the terms of the contract.¹ The contract provides that such renegotiation shall be effected on or before 1 year from the date of the contract, and the date of the contract is August 21, 1942.

¹ In this connection see also appendix, p. 9908.

Mr. AMBERG. The Imperial contract, Senator?

Senator FERGUSON. Yes, the Imperial contract.

General SOMERVELL. Wasn't there a supplement after that?

Mr. AMBERG. For further explorations.

General SOMERVELL. For further explorations, I think there is. I don't know, I have been out of the country, but at any rate while I was gone they started.

Senator FERGUSON. We don't seem to have any supplemental contract.

General SOMERVELL. There is a supplement, sir. If I can finish this and come back to that.

Senator FERGUSON. Yes, you go ahead.

(Imperial Oil letter of intent and the supplemental contracts were marked "Exhibits Nos. 1145, 1146-A, and 1146-B," and are included in the appendix on pp. 9893-9898.)

Mr. AMBERG. There is no question of it.

General SOMERVELL. There is no question about the right to renegotiate, sir, nor their willingness to. May I go ahead?

Now, at the time the contract was made, the problem was to get an acceptable contract, and to get going. There was ample time to make any adjustments that the future required and even hindsight has justified that belief. Now, with regard to the construction contracts, nothing need be said except that renegotiation was provided for and they are being handled in the normal course as with regard to all construction contracts.

Now, with regard to the agreements with Canada.¹ Canada is our ally, and she wants oil for her Army and Navy as much as we want it for ours. Our arrangements with Canada are subject to review at any time. Our representatives treating with Canada are received with friendliness and respect due an ally as well as a great nation, and the defense of the two countries is indissolubly linked. Our defense is their defense.

There is no reason to believe that there will be any change in the interplay of fair dealing between our two countries, and I for one am not ready to accuse the Canadians of any Shylockian tactics.

Remember, again, when the agreement was drawn there was hope for more oil than reported by Imperial, but there was no promise of it. There was no certainty of it. There was no indication of our present good fortune. We faced the possibility of exhausting the resources of all but a small portion of them, and of finding the best way to dispose of a war asset, much the same as with other military installations which we have in all theaters of operations all over the world, bakeries or anything else, after they have served the military necessity which brought them into being.

The agreement provided for arbitration as to the value and for final action by the Permanent Joint Board on Defense, on which we have an equal representation.

With the changed conditions, some modification of the agreement is in order, and negotiations with Canada were opened through the State Department to develop an arrangement satisfactory to both sides.

Senator BREWSTER. When was that done?

¹ See Exhibits Nos. 1089 and 1090, appendix, pp. 9827 and 9830.

General SOMERVELL. Several weeks ago. I will give you that, Senator.¹ I have explained to you the course of our discussions up to the present, and I have also told you of our proposal, and we have every reason to expect fair treatment and a fair deal. We have uncovered the last big major oil field on the North American Continent, and it is in our next-door neighbor's yard, and our neighbor must want it used for its own defense, and, as I said, its defense is our defense and our defense is its defense. It seems to me it is crystal clear that we need oil for this war, and we need it for insurance against the future. We have a recognized stake in it, and every argument is a cogent one for the development of the field.

Now, to sum up what I have said, gentlemen, when the project was adopted, no other course of action seems even now to have been possible. The job has been courageously executed, and all the hazards, all the timid counsel that have been offered have proved to have been wrong. Not by counter arguments, but by actual physical demonstration.

Oil greatly in excess of what was expected has been discovered. The project, as originally proposed for a much smaller prospect, is virtually complete. It will deliver oil where and when we want. It requires no more material. It is declared a military necessity by the highest military authorities, and, I might say, while I was out of the country. These men are the directing heads of your successful armed forces in the field. That decision has been reinforced during the last month. The project holds promise and even certainty of much greater usefulness. Its completion should be unquestioned, and its expansion should only await the completion of negotiations and the finishing of certain data that we are now collecting.

How it is possible for anyone to conceive of refusing oil under the present conditions from any source is beyond me.

That is all I want to say, Senator.

The CHAIRMAN. Senator Kilgore was chairman of the subcommittee which went into this Canol project. Have you any questions, Senator Kilgore?

Senator KILGORE. Yes, Mr. Chairman.

From the discussion in here I want to know the exact conception under which you are treating this. In other words, is this being treated as a post-war project for World War No. 3 as you expressed it, or is it being treated as a project for the current war?

General SOMERVELL. First of all, we want oil now. We want it for this war. Secondly, we have discovered what is apparently a very valuable asset. Should we, after making that discovery, make the most of it or not? That is, for the next war.

Senator KILGORE. Then the project to date is not a post-war feature. It is a current war feature that we have been discussing and has been discussed up to the present time, is that right?

General SOMERVELL. It is both, of course, I don't know how—

Senator KILGORE (interposing). If it is both, why couldn't it have been protected in this contract? You have spoken of a contract. The contract is merely a proposal by the United States which was acceded to by the Canadian Government and by Imperial Oil Co., isn't that right?

General SOMERVELL. No, sir.

Senator KILGORE. In other words, they made no proposal. We made the proposal and they accepted it, isn't that right?

¹ Subsequently submitted, see appendix, p. 9908.

General SOMERVELL. Well, there are two things: One is the contract, sir, which is a——

Senator KILGORE. Well, it amounted to a contract.

General SOMERVELL. One is a contract with the Imperial Oil Co. and the other is an agreement with the Canadian Government.

Senator KILGORE. Yes.

General SOMERVELL. Now in the contract with the Imperial Oil we put in a proviso which permitted renegotiation. Of course, our arrangements with Canada are subject to change at any time.

Senator FERGUSON. General, would you have your aide find whether or not that contract has been modified?

General SOMERVELL. Yes, sir.

Senator KILGORE. And that was the provision made in your contract then—the right to renegotiate as far as this 3,000-acre lease of Imperial Oil Co. is concerned?

General SOMERVELL. Yes, sir.

Senator KILGORE. And it was a proposal by the Government in both cases, by our Government?

General SOMERVELL. That is true. Most decidedly.

Senator KILGORE. And they accepted our terms.

General SOMERVELL. Most decidedly; yes, sir.

Senator KILGORE. Now, a large part of your discussion both in this public hearing and in the private hearing related to the need for petroleum. Now, at the outset this is what I want to bear down on, what did you expect to add to this picture by spending \$135,000,000 to get 479 barrels of aviation gasoline a day, and at the same time in that critical period using 300,000 tons of vital shipping and 300,000 tons of critical material.

General SOMERVELL. Well, sir, in the first place we are not spending it to get 470 barrels of aviation gasoline a day. That is only a part of the product. In the second place, we haven't spent 300,000 tons of material up there.

Senator KILGORE. 479 barrels a day is all of the aviation gasoline that is expected to be produced from the present plant, isn't it?

General SOMERVELL. As I explained to you, Senator, we are not seeking to get aviation gasoline alone.

Senator KILGORE. All right, then we still get a thousand barrels of truck gasoline on top of that.

General SOMERVELL. And certain other distillates come out.

Senator KILGORE. Isn't it a fact, also, that in that place you are going to have to use all your other distillates and probably part of your gasoline to get heat to maintain the refinery?

General SOMERVELL. I don't think so.

Senator KILGORE. It takes a tremendous amount of heat to maintain a refinery in Texas, and I imagine at 25 below it would take still more heat.

General SOMERVELL. Let me give you the output. The output amounts to 2,220 barrels.

Senator KILGORE. Consisting of what?

General SOMERVELL. Wait a second. That was the original figure that you are talking about. That was the 2,220 barrels. Of that, there were to be 479 barrels of 100-octane, 1,048 of——

Senator KILGORE (interposing). Truck gasoline.

General SOMERVELL. Truck gasoline, 400 of Diesel oil, and 293 of recharging stock and residual fuel.

Senator KILGORE. Is that net, without importing additional components from the United States to step that gasoline up?

General SOMERVELL. That is the net, with the exception of a little tetraethyl lead; yes, sir.

Senator KILGORE. Have you deducted anything to take care of the material necessary to operate that refinery?

General SOMERVELL. Yes, sir. We deducted 800 barrels. We get a 3,000-barrel input and a 2,200-barrel output.

Senator KILGORE. That 800 barrels you maintain will operate the refinery?

General SOMERVELL. Yes, sir.

Senator KILGORE. At the time this project was planned, was that considered enough to justify this material expenditure?

General SOMERVELL. At that time it was, most decidedly. Our backs were to the wall. We were driven practically out of every outpost. We didn't know where we were going to turn next. Any amount of oil would have been justified.

Senator KILGORE. Any amount of oil, no matter where placed, would have been justified?

General SOMERVELL. Well, within the realms of reason; yes, sir.

Senator KILGORE. You have spoken in your testimony of first hearing of the Point Barrow and other Alaskan deposits in 1933.

General SOMERVELL. That is right.

Senator KILGORE. When did you first consider the possibility of obtaining petroleum products out of Canada?

General SOMERVELL. I can't say exactly, probably in January or February.

Senator KILGORE. That was of 1942?

General SOMERVELL. Yes, sir.

Senator KILGORE. Who called it to your attention at that time?

General SOMERVELL. I can't say. The whole matter was being discussed. The whole world-wide gasoline situation was a critical one and, as I explained to you, when we were considering this road the whole question of gasoline was one of the things that was uppermost in my mind. We talked the thing over, as I told you, all the way from New Zealand to Point Barrow.

Senator KILGORE. You mentioned that General Pyron was thoroughly familiar with this situation.

General SOMERVELL. Yes, sir. He is certainly one of those that I talked it over with. Whether it came from him first or from Mr. Stefansson or Colonel Graham or General Crawford or somebody else, I am unable to say.

Senator KILGORE. Did you have a conference with Mr. Teagle, of Standard of New Jersey, about that time on it?

General SOMERVELL. No, sir.

Senator KILGORE. I seem to recollect that possibly you had a conference with him.

General SOMERVELL. I may have, but I don't remember. I know General Carter knew Mr. Teagle, and General Carter was instrumental in having some of the representatives of that company come down and talk.

Senator KILGORE. You say it was first called to your attention sometime in January of 1942 that there was an available oil deposit in Canada. When that was called to your attention, what action did you take, what did you do, that being your responsibility on the General Staff at that time, as I take it from your testimony?

General SOMERVELL. Yes, sir. Well, I talked over with Colonel Graham and General Pyron at various times the whole problem. I don't know how many times I talked to them.

Senator KILGORE. Was any effort made to collect first-hand information?

General SOMERVELL. Oh, yes. General Pyron had gotten first-hand information from the vice president of the Humble Oil Co.; had had it since 1938 or 1939.

Senator KILGORE. On what?

General SOMERVELL. On the Imperial field.

Senator KILGORE. Was that information furnished to you and studied by your staff?

General SOMERVELL. Furnished to me by him.

Senator KILGORE. Did he have any statistics or figures?

General SOMERVELL. Unquestionably he had some. We were talking about the size of the field, and so on. One of the things that worried us was the size of the field. That persisted for several months after the order was issued.

Senator KILGORE. Can you furnish the committee with that information that you had at that time?

General SOMERVELL. I haven't anything in writing.

Senator KILGORE. Could you have General Pyron furnish that?

General SOMERVELL. If he has it. Most likely he has it; yes.

Mr. JULIUS H. AMBERG (special assistant to the Secretary of War). General Pyron states that he hadn't it in writing at the time.

Senator KILGORE. Did that relate to anything but the outline of that lease and the geology of that particular lease up there which was held by Imperial Oil Co.?

General SOMERVELL. No. That was the only oil-producing field. On this other general consideration, we talked over the question of the Alaskan possibilities. It was covered at some length, I am sure.

Senator KILGORE. With whom was that discussed?

General SOMERVELL. I discussed that with General Pyron. I am pretty sure I discussed it with Colonel Graham, although he probably wasn't too familiar with that.

Senator KILGORE. What information did they give you on the Alaskan situation?

General SOMERVELL. That it was very doubtful.

Senator KILGORE. Very doubtful.

General SOMERVELL. There was one small field down near Juneau, northwest of Juneau, where they had some local oil, but there wasn't anything there. There was something that seemed more promising over near Kodiak.

Senator KILGORE. Wasn't it about that time, also, that Mr. Ickes took up with the War Department the proposition of spending some money for exploration in Alaska and was turned down?¹

General SOMERVELL. I don't remember. That could be established very easily.¹

¹ Subsequently supplied, see appendix, p. 9908.

Senator KILGORE. Would you check that up, please?

General SOMERVELL. Yes, sir.

PLANNING OF THE PROJECT

Senator KILGORE. In your memorandum of July 6 of this year, you made the statement to General Marshall that immediately following Pearl Harbor, study was made.

General SOMERVELL. Have you got that memorandum?

Mr. FULTON. Yes.

Senator KILGORE. I think I have a copy of it. Yes. The date of the memorandum is July 6, 1943, Memorandum for the Chief of Staff, and the subject is Report on Canol project.

(The memorandum referred to was marked "Exhibit No. 1147" and is included in the appendix on p. 9900.)

General SOMERVELL. That is right. I recognize that.

Senator KILGORE. Paragraph 3 from that [reading]:

Immediately following the Pearl Harbor attack a study was made to determine the availability of petroleum for the construction of the Alaskan Highway, and an assured local supply of petroleum products for military forces stationed in the Alaskan theater. This study developed the fact that there was only one known oil field near Alaska, that being at Fort Norman on the Mackenzie River. An intensive study of the geology and production record of the Mackenzie field indicated that additional drilling in the Norman area would develop a supply of crude oil in excess of 3,000 barrels per day.

Is there any written record of that intensive study made at that time?

General SOMERVELL. The only thing as the culmination of the study is a memorandum from Colonel Graham to me.

Senator KILGORE. Does that memorandum of Colonel Graham to you have any specific data or facts in it with reference to that field?

General SOMERVELL. Oh, yes. He recommends that it be done. It is a matter that we had been discussing for some time, Senator.

Senator KILGORE. Isn't it a matter of fact that that memorandum contains nothing but recommendations?

General SOMERVELL. I believe it does; yes. There was no occasion for writing anything, Senator. Everybody trusted everybody else. There was no need to build up a record or prepare an alibi or anything of that kind. We were doing business in a businesslike way. It culminated in a conclusion that we should drill and do this job, and that part of it was recorded, as well as the orders to carry it out. There is likewise nothing in there in writing to show that General Pyron discussed the question of the New Zealand field with me or told me that the Superior Oil Co. had been—

Senator KILGORE (interposing). Now, getting back to the question of the memorandum, in the period between January and April 29, had Mr. Graham made to you any reports on the progress of this study that was going on?

General SOMERVELL. Yes; we talked the thing over from time to time.

Senator KILGORE. Just verbal reports?

General SOMERVELL. Practically every night I talked—

Senator KILGORE (interposing). Statistics?

General SOMERVELL. Yes. Practically every night he talked to me around 7 or 8 o'clock.

Senator KILGORE. Mr. Graham was very vague and indefinite as to any information he had prior to April 29 in his testimony before the committee. What did he tell you as to what information he had? Have you read his testimony before the committee?

General SOMERVELL. No. I have read a summary of it.

The CHAIRMAN. It is interesting to read.

Senator KILGORE. If you read his testimony, you will find he is very vague as to any information he had or any studies he had made.

General SOMERVELL. Senator, that was made nearly 2 years ago. As I tried to tell you, we were fighting a war for the life or death of this country, and the enemy were on the west coast of the United States. I issued orders in writing which I should like to read to you, telling my people that they should not write memorandums, that they should not put things in writing that can be handled orally and by telephone. It was the only way that business could be done, it was the only way business could be transacted, it was a businesslike way of doing it. I have no reason, had no reason, and have none now for distrusting or fearing that any of the people in my organization would tell me anything that wasn't so or any reason to mistrust them.

Senator KILGORE. I am sure the committee doesn't infer anything like that, General.

General SOMERVELL. We don't have to write memoranda to each other.

Senator KILGORE. But what I am trying to get from you is to find out, because you had to make the ultimate decision, what he told you about this or what these others told you.

General SOMERVELL. I just described it to you at considerable length. I will repeat.

One, we went over the whole question of availability of oil in Alaska. What I already knew I didn't need to discuss very much. On the other hand, there was this field at Norman Wells. I told you I don't remember who brought it to me first. I don't know whether it was General Pyron or General Crawford or Mr. Stefansson or just how I found out about it, but I do know definitely that I did find out about it. I think that is pretty clear. During this period the advisability of doing one thing or another was brought up from time to time. The situation kept on getting worse and worse and worse.

Senator KILGORE. You are speaking of the strategic situation?

General SOMERVELL. I am speaking of the oil situation. When we stopped tankers on the Atlantic coast, and then the summer was coming on, the question was whether to do anything or not to do anything. I had all this data. I think what I had was pretty good, and the proof of it is that it is a lot better than we ever dreamed.

Now let we read you this order.

Senator KILGORE. Just a second. The order on no memoranda?

General SOMERVELL. Yes.

Senator KILGORE. I think the committee all understand that such an order was issued, but there is another thing I want to get at. Did Mr. Graham at any time prior to has handing in this memorandum tell you anything with reference to the engineering difficulties of this job, what the engineering problems were that faced you?

General SOMERVELL. I have been an engineer for 30 years. I don't have to have them explained to me. But unquestionably we did discuss the difficulties of doing a job in a place of that kind.

Senator KILGORE. That is what you had him for, isn't it? He is an engineer, isn't he?

General SOMERVELL. No. That was one of the things I had him there for. Colonel Graham probably knows more about wartime supply than anyone else I know. He had been through the mill overseas in France; he had a most successful experience over there. I had him there for his general knowledge of military supply.

Senator KILGORE. General, do you remember, from your recollection, whether or not he did tell you anything about that engineering situation?

General SOMERVELL. I can't say 2 years from then exactly what we discussed, Senator. It would be totally impossible for me to do so.

Senator KILGORE. He stated in his testimony that he made no attempt at all to ascertain anything with reference to the engineering problems up there, the cost of construction, or anything else, and all the other persons present at that conference in their testimony indicated the same thing.

General SOMERVELL. That is quite true, that no one made any engineering survey to determine the cost. That is a fact. That is 100 per cent correct.

Senator CONNALLY. If the general wants to read that order, let him read it. He has said twice he wants to read it.

Senator KILGORE. All right.

The CHAIRMAN. Go ahead and read it, General.

(The order referred to was marked "Exhibit No. 1148" and appears in the text below.)

General SOMERVELL. This is the first order I ever issued as commanding general of the Army Services of Supply.

The maximum use will be made of the telephone and personal conferences to expedite the transaction of business. Communications among the offices and agencies of the Services of Supply in Washington—

and so forth—

will be in the form of memoranda or endorsements.

So we prescribed first of all that we use to the maximum telephone and personal communications and that we do not write these long studies which would drag the War Department's business behind, but that we keep our stuff in memorandum form as far as we could.

Senator KILGORE. That would be true regardless of the quantity, the amount of money involved or the size of the contract?

General SOMERVELL. Yes, sir. A check is just the same size, no matter what you write on it.

Senator KILGORE. Did you at that time consider any alternative methods of obtaining equal quantities of gasoline in the Fairbanks area? As I recollect it, you were faced with a threat right in that immediate area up there and on the west coast. It was an immediate threat.

General SOMERVELL. That is right.

Senator KILGORE. A hazard that was well recognized. The question was an immediate supply of the necessary materials to throw that threat back. Isn't that right, General?

General SOMERVELL. Yes.

Senator KILGORE. Did you consider any alternative method of obtaining those supplies to throw back that immediate threat?

General SOMERVELL. Yes, sir. We considered whether we would put this in Fairbanks or other places, but Whitehorse is directly in the center of the route; it is the most accessible of all the locations that could be used to build the refinery. For the immediate supply of the whole of Alaska, there was nothing any closer. There was nothing that could be done in Fairbanks in any way that could have alleviated the situation, unless we could have discovered oil in that general neighborhood.

Senator KILGORE. I was talking about transportation and storage in lieu of drilling and prospecting.

General SOMERVELL. Oh.

Senator KILGORE. Did you make a study of those methods?

General SOMERVELL. I just tried to explain, sir, that the transportation was the bottleneck. Transportation was the thing that bothered. Transportation is the thing that has bothered us right along. What we had to do was to try to get oil and everything else up there, just as we try to buy vegetables up there for the project in order to conserve our transportation.

Senator KILGORE. And for that reason you studied no other alternatives. Did you consider the inland passage to be dangerous at that time?

General SOMERVELL. There were no other alternatives. No, the inland passage was the safest thing we had, and the inland passage has remained the safest thing we have. The inland passage has been used by us to get the stuff up there. We have used all kinds of cats and dogs and barges and everything else that we could rake together and used the inland passage in lieu of using ships which would be available for overseas haul.

Senator KILGORE. Did you know that Mr. Graham and the others present at the conference testified that they didn't consider any other alternative methods except that they assumed that it might be impossible to keep the inland passage free from attack and that that was the reason for going into this project?

General SOMERVELL. It might have been impossible to keep it clear, but that remained always the safest thing that we had on the west coast. There was nothing else to do, Senator. I mean there was no extra means of transportation except these barges. That is all there was. We had exhausted everything else. It is all very well to talk about what you could do with extra tankers, but there weren't any extra tankers. There weren't enough.

Senator KILGORE. Wasn't it actually taking a lot of tanker space to haul the extra gasoline up there to work with?

General SOMERVELL. Not much, very little. We got a good deal of gasoline from over at Norman wells, we got a great deal of it up the highway, we got a great deal of gasoline the other way.

Senator KILGORE. Did you fly it from Norman wells in?

General SOMERVELL. We flew gasoline in to Watson Lake and in to Northways and to Fort Nelson for quite a while; yes, sir.

Senator KILGORE. From Norman wells?

General SOMERVELL. No, sir. Most of it came from down here, from Edmonton.

Senator KILGORE. Edmonton. How did you transport your gasoline from Norman wells?

General SOMERVELL. Norman Wells gasoline was used down the Mackenzie on the work in that vicinity.

Senator KILGORE. I see. When you read Graham's memorandum did you note that it contained only recommendations and no supporting data at all?

General SOMERVELL. Oh, yes. He brought it in to me and handed it to me himself.

Senator KILGORE. As an engineer of 30 years' experience, were you not aware at that time that the performance of that memorandum was absolutely and utterly impossible?

General SOMERVELL. Well, we have done it, so it couldn't be impossible. Oh, you mean within the time limit?

Senator KILGORE. Yes; within the time limit. That was the essence of the memorandum, and the essence of that conference was the time limit.

General SOMERVELL. As I explained to you, Senator, we pushed the thing very hard for a while, and then when it was apparent that we didn't have to push it so hard, we didn't.

Senator KILGORE. Did you believe that that could be completed by October of 1942 under any circumstances to get that production?

General SOMERVELL. I didn't think we had a chance; no.

Senator KILGORE. Yet that was what you directed.

General SOMERVELL. Oh, yes.

Senator KILGORE. That is what you directed the Corps of Engineers to do.

General SOMERVELL. Oh, yes. We set them a target date, and we have been driving them ever since.

Senator KILGORE. Would you ever set a target completely out of range of the guns?

General SOMERVELL. Yes. We have done it right along, and the curious thing about it is that we have hit some of them.

Senator KILGORE. In this one the target date was September 15 of 1942 for the pipe line—

General SOMERVELL (interposing). That was very optimistic.

Senator KILGORE. October 1, 1942, for the refinery, and the refinery was still standing on the soil down in Texas and the pipe was still in the United States.

General SOMERVELL. That is right.

Senator KILGORE. How many miles of access road had to be built to get the pipe in, including winter routes and barge lines and everything else?

General SOMERVELL. A lot of it.

Senator KILGORE. Well, how much?

General SOMERVELL. I don't know.

Senator KILGORE. Could you give us the mileage that was built on that?¹

General SOMERVELL. Yes, sir; I should be glad to.

Senator KILGORE. In Graham's statement before the committee he said that the Canol project was cockeyed; that the only justification was military expediency—

General SOMERVELL. You, of course, realize that—

Senator KILGORE. That from an economic proposition the project was cockeyed.

General SOMERVELL. That is right.

¹ Subsequently supplied, see appendix, p. 9908.

Senator KILGORE. Do you agree with him on that?

General SOMERVELL. I do. At that time it was.

Senator KILGORE. Then why in July 1943 does the memorandum to Marshall attempt to show that there will be transportation savings by using the Canol project as against the Los Angeles tanker operation? I am talking now about economics.

General SOMERVELL. It isn't economics. We haven't got the tankers, so it is a kind of wide mark to talk about.

Senator KILGORE. Why not say that, instead of giving it in dollars and cents as set forth in that memorandum?

Mr. AMBERG. What paragraph are you referring to in the memorandum, Senator?

Senator KILGORE. In July 1943. You set up in that the transportation of gasoline from Los Angeles to Skagway by tanker, from Texas to Skagway by rail and boat, and from Caribbean to Skagway by tanker, and savings of 90,000 barrels a month and 180,000 barrels a month; you compare the figures; the question of turn-around is taken up and discussed, and the conclusion is that [reading from Exhibit No. 1147]:

On the basis of 3,000 barrels per day of assured production from the Norman fields—

Which really would mean 2,000 barrels a day, or 2,200, I believe it is—

a savings in the continuous operation of 4 tankers and 21,000 barrels of fuel oil per month is effected by the Canol project. On the basis of a probable potential supply of 6,000 barrels per day, a savings in the continuous usage of 8 tankers and 42,000 barrels of fuel oil per month will be effected.

General SOMERVELL. Aren't those figures correct?

Senator KILGORE. Well, are they?

General SOMERVELL. I think so; yes, sir.

Senator KILGORE. What do they show, then?

General SOMERVELL. They show what the conclusion is. You just read it.

Senator KILGORE. The economic soundness of the project?

General SOMERVELL. Oh, no. We are talking about something quite different in this letter. Nobody has ever attempted to justify the economic soundness of the project. What we are talking about is the question of completing the project.

Senator KILGORE. Then would it be sound economically to complete the project?

General SOMERVELL. The whole thing is uneconomical. No one has ever stated that it was economical. Nobody has ever attempted to justify it as being economical.

Senator KILGORE. Why, then, is the heading put in this memorandum, "Estimated savings on transportation of petroleum products to Alaskan theater from various supply points"?

General SOMERVELL. It shows just what it shows: What it would cost to move that amount of oil from Los Angeles to Skagway, the length of time it takes to make the trip from Los Angeles, the length of time it takes to make the trip from the Caribbean.

Senator KILGORE. Wait a minute. In the first place, you move two-thirds that amount of products, not of oil, because you wouldn't move it up there to refine it. So you would move 2,200 barrels rather than 3,000 barrels of that.

General SOMERVELL. Well, let's get down to that. [Reading from Exhibit No. 1147]:

The above tabulation is made on two bases, one, 3,000 barrels per day production and the other 6,000 barrels per day production, and the costs of transportation are roughly figured on the bases of 90,000 and 180,000 barrels of products per month. Over one-third of this product is now being shipped from Texas—

and so on.

Your point is that it should be set up on the basis of 2,200 barrels per—

Senator KILGORE (interposing). No; my point is, was that done to prove the project economically sound? We are going to dollars-and-cents cost.

General SOMERVELL. No; no; not by any means; but it was done to show the desirability of finishing the project.

Senator KILGORE. Did this show to General Marshall the amortization of the project, how much we would have invested? You are speaking of so much a barrel here.

General SOMERVELL. Senator, I, for one, would be the last to have advocated this project as a commercial venture, if that is the point. I shall be glad to concede it.

Senator KILGORE. Then you were not trying to justify this on any sound economic basis at all in this memorandum to General Marshall?

General SOMERVELL. Not to justify the whole cost of the project; that is right.

Senator KILGORE. To justify any part of it?

General SOMERVELL. Oh, yes, sir. It was bound to justify some of it.

Senator KILGORE. All right, what?

General SOMERVELL. Whatever comes out is bound to be justified.

Senator KILGORE. That is what I am trying to get at. What comes out?

General SOMERVELL. What we say here is this: We say that [reading from Exhibit No. 1147]:

on the basis of the 3,000 barrels per day of assured production from the Norman fields, a savings in the continuous operation of 4 tankers and 21,000 barrels of fuel oil per month is effected. * * *

That is what we conclude.

On the basis of a probable potential supply of 6,000 barrels per day, a savings in the continuous usage of 8 tankers and 42,000 barrels of fuel oil per month will be effected.

You could go on. If we continue the thing and finish up, as Judge Patterson discussed, on the basis of 20,000, then we will save the continuous operation of something like 14 tankers from the Caribbean and I don't know how many—41 tankers from the Persian Gulf.

Senator KILGORE. You fail to take into this, also, the estimated cost of transportation from Norman to White Horse, which would be about \$1.50 a barrel, wouldn't it, under the conditions?

General SOMERVELL. No.

Senator KILGORE. \$1.50 a barrel?

General SOMERVELL. Senator, when we started this project, the idea was to get oil to the battle front. I don't know what the pipe line

cost in north Africa, and I didn't make an estimate of it ahead of time. I don't know what the pipe line is going to cost in Burma, and I haven't made an estimate of cost even now. We are building pipe lines in Italy, and I haven't made an estimate of cost, and I didn't make an estimate of cost on what it cost to take any islands we have captured. But we have got to do it. It is one thing to set up an economic commercial operation and another thing to get supplies to the battle front.

I have never claimed—and I don't want to be put in the position of claiming here—and I have never felt that this project was a commercial operation.

Senator KILGORE. Did you note that with the testimony of the Fuel-Petroleum Administrator, estimates requested by the committee were furnished showing that an equivalent amount of gasoline for a 2-year period had been placed in Alaska at that time in storage, including all transportation for \$2,601,820?

General SOMERVELL. No; I didn't know about that. What storage would have been put in?

Senator KILGORE. Storage at strategic points in Alaska.

General SOMERVELL. Was the cost of building the storage included in that?

Senator KILGORE. The cost of building the storage, the transportation of material, and the transportation cost of the gasoline.

General SOMERVELL. Again I want to say that in the first place we didn't have the things to put it into Alaska with, so that the calculations were of no value to you.

Senator KILGORE. You mean to put the storage or the gasoline?

General SOMERVELL. The gasoline.

Senator KILGORE. You were putting it in, though.

General SOMERVELL. We did put gasoline, but not that much.

Senator KILGORE. That is the difference between the building of a pipe line on the Italian front or in north Africa when the battle is going on. You don't build it to be completed when the battle is going on. The battle was going on in the Aleutians at that time, and it was shortly after that that Dutch Harbor was bombed and Kiska and Attu occupied.

General SOMERVELL. That is right.

Senator KILGORE. So strategically could it have yielded any benefit under the conditions, with that fight going on up there?

General SOMERVELL. Why, of course. We intended to fight. We weren't going to give way.

Senator HATCH. Suppose that battle had been lost.

General SOMERVELL. Then the whole thing would have gone by the board.

Senator KILGORE. And taking 300,000 tons of shipping facilities away from them while that fight was going on was a pretty serious loss.

General SOMERVELL. Where did you get the 300,000 tons?

Senator KILGORE. That is the total tonnage taken for this system.

General SOMERVELL. I am sorry, but we took the whole tonnage figured on this job as 134,000 tons, and about 42,000 tons went up by boat.

Senator KILGORE. You are just talking about steel?

General SOMERVELL. I am talking about the materials used on the project.

Senator KILGORE. Including gasoline?

General SOMERVELL. The refinery, the pipe line from Norman Wells to the oil field is what we are talking about.

Senator KILGORE. Supplies for the troops and supplies for the civilians that were working on the lines?

General SOMERVELL. That went up there. Well, you mean all the troops in Alaska, or for the—

Senator KILGORE (interposing). No.

General SOMERVELL. We had very few troops on the line.

Senator KILGORE. You had about 5,000 on the line and the road, all told.

General SOMERVELL. Well, but we are talking about the project, not the road.

Senator KILGORE. It was part of the distribution project for gasoline, wasn't it, to get the stuff to the fighting front?

General SOMERVELL. Don't you think—I mean, do you want to include the pipe lines along the roads now?

Senator KILGORE. No.

General SOMERVELL. All right. Then the tonnage was 134,000 tons, and of that amount about 42,000 tons went by ship.

Senator KILGORE. According to the figures given us by the War Department, there were 4,000 troops and 12,000 civilians, and the total tonnage and material was 300,000, of which 178,000 went into the pipe line and refinery.

General SOMERVELL. I don't know where you got those figures.

Senator KILGORE. Including construction and transportation.

General SOMERVELL. The figures that we have are 134,000 tons, and of that 134,000 tons, 42,000 went by ship. Now, of the 42,000 that went by water, less than 10 percent of it went by an ocean-going carrier. So what you are talking about is a half boatload of material.

Senator KILGORE. Isn't transportation into combat area vital, no matter how it is?

General SOMERVELL. Oh, yes.

Senator KILGORE. Whether by truck, plane, boats, railroad, or otherwise.

General SOMERVELL. Senator, the point here is that we were adopting this project in order to save tankers.

Senator KILGORE. I quote from a memorandum of March 29, 1943, signed by General Handy, under the heading "Troop requirements of Northwest Service Command," he says:

The cost of the crude-oil pipe line from Norman Wells to White Horse and the refinery at White Horse was estimated at \$57,711,000, involving 178,000 tons of material (of this amount, the value and weight of the equipment in place was set at \$9,191,000 and 44,410 tons, respectively).

(The memorandum referred to was marked "Exhibit No. 1149" and is included in the appendix on p. 9906.)

General SOMERVELL. That was last March, and I don't doubt that that was the figure that the Chief of Engineers gave them, but the figures have been calculated more recently, and some more after that show 134,000 tons. For this part of the project, that is, the refinery and the pipe line, 42,502 weight tons went up by water. Of that, most of the 75 percent of the total, that is, food and everything,

moved by barge; the balance by repeated trips of wooden steam schooners *Mt. Baker*, *Anne Hanify*, and *Brunswick*, suitable only for the inside passage, with a small percentage on the small steel vessels *Alvarado* and *Morlen*. Out of Seattle, part cargoes on two Liberty ships. The other vessels used were of lake type and two small wooden schooners. Out of Tacoma 3,800 tons went, and that was carried as part cargo. Out of Vancouver 6,500 part cargoes went in one Liberty ship, one lake-type ship, two steam schooners, one small Canadian vessel.

Senator KILGORE. Oil barges could have been discharged at Skagway, couldn't they, and have gone up the inland passage?

General SOMERVELL. If we had them; yes, sir.

Mr. AMBERG. Perhaps one reason, Senator, for the difference between the figures from the Chief of Engineers on January 31 and the present one is that the Houdry process at the refinery has been omitted in the meanwhile.

Senator KILGORE. What was the reason for omitting the Houdry process?

General SOMERVELL. Well, at that time it didn't seem justified to go ahead with it. I explained all that to you.

Senator KILGORE. Wouldn't that Houdry process almost double your supply of aviation gasoline?

General SOMERVELL. I explained that to you in secret this morning, Senator.

Mr. FULTON. Mr. Amberg, those figures were given in January—that is, as far as between two and three hundred thousand tons are concerned, were given by the War Department in October of this year also, were they not, by General Worsham?

Mr. AMBERG. I don't recall that.

Mr. FULTON. Isn't it a fact that the figures which General Somervell is giving are figures as to materials without including the materials and supplies for the people necessary to build the highways?

Mr. AMBERG. I don't know.

Mr. FULTON. Isn't that true, General Somervell?

General SOMERVELL. I couldn't answer that. I would have to check.

Senator KILGORE. You check and answer.

General SOMERVELL. Yes.

Mr. FULTON. Figures are supposed to have been officially checked.

Senator KILGORE. Will you check and ascertain and advise us as to whether that did include food and supplies for the people working on the lines? ¹

General SOMERVELL. The total amount that has gone up there altogether, including everything on all the rest of the project, food and everything else, the total amount that has gone by water is a hundred thousand tons.

Senator KILGORE. I wasn't talking just about by water alone. By every means of getting it in there.

General SOMERVELL. But the water transportation is the only point at issue in our consideration of the project. I should like to make that very clear. That is why we built the road, sir.

Senator KILGORE. Getting back to the start of my questions, do you seriously claim now, General Somervell, that the Canol project was

¹ Estimates of tonnage were subsequently supplied, see appendix, p. 9909.

undertaken or was advisable for the purpose of increasing the total petroleum reserves of the United States?

General SOMERVALL. Of course not.

Senator KILGORE. Then why was it, in your memorandum to General Marshall, that you quoted Mr. Ickes to the effect that more petroleum was needed, without pointing out to General Marshall Mr. Ickes' opposition to Canol and the fact that more oil products could be obtained more quickly from other sources?¹

General SOMERVALL. That is to be demonstrated.

Senator KILGORE. In fact, Mr. Ickes made the contention, did he not, to the War Department, that more oil could be obtained by rehabilitating marginal wells in the United States, at less money, than could be obtained from the whole Canol project for use in this war?

General SOMERVALL. I don't remember that. I am not questioning it; I just don't remember.

Senator KILGORE. And isn't it also true that that could have been done with an expenditure of much less manpower and material in the United States?

General SOMERVALL. There are a lot of things that could have been done in the United States. It is a little difficult, Senator, if you pursue any one of these lines of inquiry without consideration of the others. On the one hand we are told that what we want to do is to get oil out of the United States, that that is what we ought to do; that we are using up our reserves, that we ought to get the oil somewhere else. On the other hand, we are told that we must get the oil in the United States. It is pretty hard to consider these things without looking at it all together.

Senator KILGORE. Yes; but, General, you realize that the rehabilitation of the marginal wells is really the recovery of what would otherwise be lost reserves, in most instances.

General SOMERVALL. You take marginal wells in West Virginia and rehabilitate—they wouldn't have done us much good up in White Horse.

Senator KILGORE. No.

General SOMERVALL. So, to answer your question, I don't think—

Senator KILGORE (interposing). But you needed gasoline on the Atlantic coast as well as up in Alaska.

General SOMERVALL. I didn't. I needed it in White Horse as well.

Senator KILGORE. And you had wells in California and in Wyoming.

General SOMERVALL. To the best of my knowledge, everything that can be done is being done to increase the production in California. That is what we are told by the Petroleum Administration for War.

Senator KILGORE. Now, will you, just to get the record clear, state for the purpose of the record your own viewpoint and presentation of the military expediency theory—as you saw it in the spring of 1942, not now.

General SOMERVALL. I have to apologize, Senator. I didn't hear all that question.

(The question was read by the reporter.)

Senator KILGORE. That is when you signed the directive?

General SOMERVALL. Yes.

Senator KILGORE. Directed the engineers to build this.

¹ Exhibit No. 1147, appendix, p. 9900.

General SOMERVELL. I thought I took a half-hour doing that, Senator. I am not sure——

Senator KILGORE (interposing). You don't have anything to add to what you have already said, then?

General SOMERVELL. No.

Senator KILGORE. At that time, were you under the false impression that it could be completed by that fall? Did you have any idea that it could be completed by the date set for it in your directive?

General SOMERVELL. That was a very optimistic hope; yes, sir.

Senator KILGORE. Did you think that 600 miles of pipe line over that type of country with access roads could be built in 4 months?

General SOMERVELL. I certainly didn't think 600 miles of access road.

Senator KILGORE. And that pipe could be transported into the site and laid and strung and welded?

General SOMERVELL. No, no. You do know, though, don't you, that we did build the road that summer all the way through?

Senator KILGORE. Oh, yes; but you used gravel which was a locally found material, and all you had to do was to transport your laying equipment in.

General SOMERVELL. Yes.

Senator KILGORE. And your men. And that was admitted to be an outstanding feat of engineering at that time.

General SOMERVELL. That is right.

Senator KILGORE. But here we have to take 4-inch pipe and transport it 1,200 miles north of Edmonton and lay it across 620 miles of muskeg and two ranges of mountains.

General SOMERVELL. That was a very, very optimistic date.

Senator KILGORE. Well, getting the optimism out, down deep in your heart, did you even think it could be done?

General SOMERVELL. I didn't think we could.

Senator KILGORE. When did you think you could finish it under the date that you had at that time——

General SOMERVELL. I thought we could get it finished the next summer.

Senator KILGORE. And the data furnished to you by Mr. Graham? And on what did you base that?

General SOMERVELL. We based that on further study.

Senator KILGORE. On further study? I mean, what studies were made after that that gave you—how soon did you determine—did you reach that conclusion?

General SOMERVELL. I think I reached that conclusion during the summer.

Senator KILGORE. Of 1942?

General SOMERVELL. Yes.

Senator KILGORE. That it could be completed by the summer of 1943?

General SOMERVELL. Yes. I was up there then.

Senator KILGORE. Had you had your surveys made?

General SOMERVELL. Yes. We had people all over the place.

Senator KILGORE. Viewing the situation strategically as it was in the Aleutians on April 29, unless you were extremely optimistic would you have justified the use of all this transportation to get this equipment in there to be used even as late as 1942, midsummer 1942?

General SOMERVELL. Yes, sir.

Senator KILGORE. How would you justify that?

General SOMERVELL. As I told you, we used the type of transportation that wasn't suitable for other uses.

Senator KILGORE. Had you known that it wouldn't be completed until 1944, which is now the figure, would you still have justified yourself?

General SOMERVELL. I doubt it. But as I told you, we could have finished it sooner.

Senator KILGORE. General, did Mr. Graham or anybody else on your staff inform you that they had made no calculations of how much petroleum products could be transported to Alaska with an equivalent amount of transportation facilities?

General SOMERVELL. Well, Senator, there weren't any equivalent transportation facilities. That is the point that I am trying to make. There weren't any. It is all very well to say you could have done something if you had done it some other way, but if you couldn't do it the other way, it doesn't hang together.

Senator KILGORE. You were shipping it in in drums, weren't you, on schooners and barges?

General SOMERVELL. We shipped a little in, yes; nothing like this amount and nothing like the amount which we would have had to have shipped in to have sustained a major campaign. We weren't talking about a little dribble for an air ferry. What we were talking about was a real campaign, to back up a real campaign to last for weeks and months.

Senator KILGORE. Would 457 barrels of gasoline back up a campaign?

General SOMERVELL. Well, it will let you fly 45,000 flying fortress hours in a year.

Senator KILGORE. That sounds awfully big.

General SOMERVELL. It is awfully big.

Senator KILGORE. But how many would it be in close combat covering a period of, say 30 to 60 or 90 days?

General SOMERVELL. It might be 20 times that much. In other words, if you didn't use it every day, you would have it all available for close combat.

Senator KILGORE. That is, if you saved it up and stored it, of course, for operation.

General SOMERVELL. Correct. We had storage. Furthermore, Senator, we keep talking about a little part of this product; we keep talking about 500 barrels of gasoline.

The refinery was designed to turn out over 2,000 barrels of petroleum products. So let's talk about the whole amount.

Senator KILGORE. Let's talk about the whole amount, but the critical thing was aviation gasoline, wasn't it?

General SOMERVELL. Oh, no. One of the critical things was aviation gasoline.

Senator KILGORE. All right.

General SOMERVELL. You have to run trucks with gasoline just as you run airplanes.

Senator KILGORE. Then 2,200 barrels a day of all products, including Diesel oil. Would that be sufficient?

General SOMERVELL. Would that be sufficient for what?

Senator KILGORE. To sustain a major operation.

General SOMERVELL. No; of course not.

Senator KILGORE. What percentage of the sufficiency would it be?

General SOMERVELL. I told you that at the meeting this morning.

Senator KILGORE. You have never, then, made a study to determine, for comparison against the Canol project, what could have been transported with a similar amount of steel in barges up that inland passage?

General SOMERVELL. Oh, yes. We had a reckless statement made to the effect that you could have done this job by moving gasoline up there in two tankers or three tankers or something of that kind. That was made very early in the game. The point, Senator, is that we didn't have three tankers.

Senator KILGORE. I know you didn't.

General SOMERVELL. All right, then why—

Senator KILGORE (interposing). Using the equivalent amount of steel in the construction of barges—

General SOMERVELL (interposing). We didn't have the steel. We haven't got it now. If we had sent the gasoline up there in drums, the weight of the drums to get a year's gasoline up there would be twice as much as the weight of the pipe line. So we would have that much to pay for the drums, we would have that much to build the barges, and we couldn't build the barges. We didn't have the tanks.

Senator KILGORE. There are 3,000 tons of plate and structural steel in a tanker, and there is much, much less than that in a barge.

General SOMERVELL. That is right.

Senator KILGORE. This pipe line was made of steel, wasn't it, and part of the refinery was made of steel.

General SOMERVELL. The pipe was in stock.

Senator KILGORE. The pipe was in stock?

General SOMERVELL. Yes, sir. That is why we picked this size of pipe.

Senator KILGORE. How about the refinery?

General SOMERVELL. The refinery is a second-hand refinery.

Senator KILGORE. Wasn't that badly needed at that time? In fact, wasn't there strenuous objection to dismantling that refinery at that time due to the need for its operation there and to taking it out of operation for a period of 2 years?

General SOMERVELL. No, sir. We had five or six of these refineries, and we went to the P. A. W. and had some discussion about which one.

Senator KILGORE. The Administrator stated in his testimony that objection was registered to the dismantling of this or any other refinery at that time.

General SOMERVELL. I don't know what he said, but the fact is that the refinery was surplus, and it was picked up with his assistance, and it was sent up there, and no extra steel was used.

Senator KILGORE. No extra steel of any kind was used?

General SOMERVELL. A little bit, of course. I mean the refinery proper.

Senator KILGORE. How much additional steel was added to that refinery project after it was dismantled?

General SOMERVELL. I haven't any idea, probably a thousand tons, maybe.

Senator KILGORE. If there were a thousand tons, why did you say no extra steel was used?

General SOMERVELL. In the over-all that is a very small proportion. Some later—

Senator KILGORE (interposing). You know that it was a thousand tons?

General SOMERVELL. No, I don't. I don't know.

Senator KILGORE. Could you furnish us the figures on the amount of new steel purchased and sent up there?¹

General SOMERVELL. I can find out and put it in the record.

(The data referred to were marked "Exhibit No. 1150" and are included in the appendix on p. 9908.)

Senator KILGORE. All right. In determining the need for this and the transportation situation, did you consult with the Navy, who had the protection of the waters in its responsibility?

General SOMERVELL. I consulted with the Navy once, twice, three or four or five times a day; yes, sir.

Senator KILGORE. The Navy have officially informed the committee that prior to October 1943 they had never been consulted with reference to this project.

General SOMERVELL. Well, they certainly were not, but as I understood your question, it was, did I consult with the Navy who had the protection of this route.

Senator KILGORE. As to this project, of course.

General SOMERVELL. Yes, sir; I consulted—

Senator KILGORE (interposing). And the transportation of gasoline in there.

General SOMERVELL. Of course we didn't consult with them about that, but we were with the Navy. I was with the Navy every day. I couldn't get the protection that was needed for our convoys. We had to change our entire system because of the shortage of escorts, and the situation with respect to that condition was thoroughly familiar to them.

Senator KILGORE. Did they tell you they couldn't protect the inland passage?

General SOMERVELL. They didn't have to tell me. I knew they couldn't.

Senator KILGORE. You knew they couldn't.

General SOMERVELL. As a matter of fact, the inland passage is not in question, Senator. What is in question is getting oil from the oil fields to the inland passage.

Senator KILGORE. General, did you read General Streett's testimony? He was a representative of the General Staff at that conference which was held just before you issued that directive.

General SOMERVELL. All I read was an abstract of it. As far as I know, it is all right.

Senator KILGORE. Was he the only one on the General Staff who was consulted at that time?

General SOMERVELL. I didn't talk with General Streett particularly. I talked to his boss mostly.

Senator KILGORE. Who was that?

General SOMERVELL. General Crawford.

Senator KILGORE. What did General Crawford say?

General SOMERVELL. He said "All right."

Senator KILGORE. What information was given to General Crawford?

¹ Exhibit No. 1150, appendix, p. 9908, at p. 9910.

General SOMERVELL. I can't tell you at this date sir.

Senator KILGORE. Did General Streett represent him at the conference?

General SOMERVELL. At what conference?

Senator KILGORE. The conference that was had in General Carter's office, at which this memorandum to you was drafted.

General SOMERVELL. I think he did; yes, sir.

Senator KILGORE. Do you know that he stated in his testimony that his only position was that oil production would be valuable?

General SOMERVELL. That is right. That is all he was supposed to say. That is the only—

Senator KILGORE (interposing). And that he had never made or had furnished to him any comparative study on the logistics of the situation?

General SOMERVELL. It wasn't up to him to do any more than express the requirements, which he did, and he said it would be a godsend.

Senator KILGORE. Do you know also that he said he was under the impression from that conference that the oil would be available in 2 or 3 months or in a few months for supply?

General SOMERVELL. I don't know about that.

Senator KILGORE. Do you think his statement would have been the same had he known that it would take more than 2 years or 2 years?

General SOMERVELL. Why, of course—

Senator KILGORE (interposing). That it would be invaluable?

General SOMERVELL. I am not in a position to say "yes" or "no" to that.

Senator KILGORE. Then do you now take the position that General Streett at that conference was in any position to make an informed opinion from the information he had and to give informed advice to the General Staff and on behalf of the General Staff?

General SOMERVELL. He was certainly in a position to make the statement that he did make, that any oil on that route would be a godsend; yes, sir.

Senator KILGORE. Is that the only position he would be in?

General SOMERVELL. That is the only position he would be in, to state the requirements.

Senator KILGORE. The questions of when, where, or how—

General SOMERVELL. He meant then or as soon as possible thereafter, and as to how, it was none of his business.

Senator KILGORE. And certainly during the progress of the operation.

General SOMERVELL. During the progress of the war; yes.

Senator KILGORE. Why was not the General Staff, following that conference and prior to the issuance of the directive, asked for a definite opinion on the question of the military expediency inasmuch as the question of oil at that point was certainly a question of military expediency?

General SOMERVELL. The General Staff was asked. As I indicated in my testimony, I was the Chief of the section of the General Staff that was handling the matter, and I reported it later not only to the General Staff but also to the War Council.

Senator KILGORE. Was that report made in writing or verbally?

General SOMERVELL. It was made orally.

Senator KILGORE. Was it the custom at that time and is it still the custom of the Army Service Forces to settle and determine matters of the magnitude of this on just informal, fragmentary discussions, just words in passing, and over the telephone, taking up only portions of the subject matter? For instance, General Pyron in his testimony stated that the only thing he was asked at that meeting was, first, whether that was capable of 3,000 barrels a day production, from the geological formations shown on the maps, and he determined that question. He, although an expert on oil transportation and oil production, was not asked as to the problem of getting that oil from Norman Wells to Whitehorse or Fairbanks, other than the size of the refinery.

General SOMERVELL. He must have known, of course, that we were going to get it there, and he discussed with Colonel Graham the size of the pipe, and so on. As far as I know, General Pyron's conduct has been absolutely all right. I have certainly nothing but the highest praise for him.

Senator KILGORE. I was not making that as an attack on General Pyron. My question was, Why was a known oil expert of his caliber not consulted more thoroughly on this at that conference?

General SOMERVELL. We discussed the thing; General Pyron and I discussed the thing several times, I am pretty sure.

Senator KILGORE. Prior to the conference or after?

General SOMERVELL. Prior. Many times afterward, of course. We do business in the same way that businessmen do business. In other words, we don't run around and write each other memoranda every time we have a discussion.

Senator KILGORE. What large businesses have you found that do not keep written records of transactions of great size and of all that transpires in them?

General SOMERVELL. I think that is a question that I can't answer very definitely, but I do know that in all the transactions I have had with businessmen, which were quite extensive, we did not do that.

Senator KILGORE. I mean in their own affairs, where they are handling their own money and not where they are handling the Government's money.

General SOMERVELL. That is something I can't testify to.

Senator KILGORE. Then you maintain that in your opinion, the method of informality, without records or anything else, is good business practice to follow?

General SOMERVELL. It was not only good business practice but was the only business practice. I have tried to tell the committee, and I will repeat it again, that at that time the Japanese were knocking at our door and that anybody who delayed action to make a lengthy commercial investigation should have been court martialed.

Senator KILGORE. You delayed, according to your own statement, about 51 days from March, didn't you?

General SOMERVELL. Yes; and I have had to delay some other things longer than that simply because I couldn't get them settled.

Senator KILGORE. Apparently you knew just as much about this in March as when Colonel Graham wrote the memorandum, because the memorandum certainly gave you no information.

General SOMERVELL. Senator, I imagine we did a hundred thousand things during that period, and it is obvious we couldn't do them all in 1 day.

Senator KILGORE. Could you not have delegated this job of getting this straightened up to Dean Graham or to some engineer on your staff, to get these records together and check them?

General SOMERVELL. Oh, yes; had I thought it necessary to acquire any alibis, I would have done that, sir.

Senator KILGORE. Did you have pending at that time a hundred thousand things of the size of this?

General SOMERVELL. No; but we had a hundred thousand things to do, at least.

Senator KILGORE. What amount of consideration did you give at that time to the advantage of immediate transportation to widely dispersed storage plants, as suggested by Standard of California?

General SOMERVELL. What consideration did I give?

Senator KILGORE. As an alternative.

General SOMERVELL. What consideration did I give to it?

Senator KILGORE. Yes.

General SOMERVELL. None.

Senator KILGORE. Were you not informed by a letter from Standard of California that that could be done, that it was possible?

General SOMERVELL. I didn't see it, no.

Senator KILGORE. Were they not in the oil manufacturing and transportation game on the west coast?

General SOMERVELL. They were in the oil manufacturing and transportation game on the west coast.

Senator KILGORE. Are they not your consultants on the present project?

General SOMERVELL. They are our consultants; we hired them, and they are going to run the job, and I did not see the letter.

Senator KILGORE. Incidentally, isn't the vice president of Standard of California the assistant to Mr. Ickes on petroleum?

General SOMERVELL. Yes, sir.

Senator KILGORE. And is he not an expert on oil, also?

General SOMERVELL. I don't know to what extent he is an expert on oil production.

Senator KILGORE. Did you assume the fact to be (as we have had to do from the past hearings) that even at maximum use the Alcan Highway would add only a small trickle to the petroleum supplies at Fairbanks?

General SOMERVELL. I don't call a million barrels of petroleum a year a trickle.

Senator KILGORE. Would it add a million up to Fairbanks? I am talking about Fairbanks.

General SOMERVELL. Oh.

Senator KILGORE. Up in Alaskan territory where this war was going to have been fought.

General SOMERVELL. Well, that was one of the places where it would have to be fought. Unfortunately, we can't always select the place.

Senator KILGORE. I wonder if you have ever read a memorandum from Maj. Gen. Thomas Handy, Assistant Chief of Staff, to General

Marshall, paragraph 2, of which definitely states that the Alaskan Defense Command supply plan is satisfactory in practice and does not depend on any freight transport over the Alcan Highway, and that the highway could be used only to supply a small part of the Alaskan garrisons near Fairbanks, so that the only present practical value of the highway is for the supply of airfields situated along it and as an emergency route to Alaska.¹ Have you read that letter?

General SOMERVELL. Yes, sir. What is the date?

Senator KILGORE. It is this year.

Mr. AMBERG. March 29?

Senator KILGORE. In the spring of this year.

General SOMERVELL. Yes, sir. I remember it very well.

Senator KILGORE. Do you agree with that letter?

General SOMERVELL. Yes, sir.

Senator KILGORE. Did you ever ask the Alaskan Defense Command for an opinion in this respect?

General SOMERVELL. Yes, sir. I went to Alaska, and I went over the problems of the defense of Alaska up there. You remember that last year, 1942, the Japanese were just taking Kiska and Attu. Where they were going from there, no one knew. The whole question of supply of Alaska was up for consideration; what to do about the supply at Fairbanks, what to do about the supply at Nome, how to handle the supply along the Aleutians. This whole question was under very considerable discussion.

Senator KILGORE. Did they give you any opinion on this?

General SOMERVELL. On the Alaskan route?

Senator KILGORE. Yes.

General SOMERVELL. Yes, sir.

Senator KILGORE. Is that in writing?

General SOMERVELL. No, sir.

Senator KILGORE. Were the General Staff given an opinion before it was taken up with General Marshall by you?

General SOMERVELL. Yes; and it was approved by the President of the United States formally.

Senator KILGORE. When?

General SOMERVELL. February 11.

Senator KILGORE. Of this year?

General SOMERVELL. Of 1942.

Senator KILGORE. Oh, you are talking about the Alaskan Highway.

General SOMERVELL. Yes, sir; weren't you?

Senator KILGORE. The Alcan Highway. Was this Canol project ever approved by the President?

General SOMERVELL. Yes, sir; it has been approved by the President.

Senator KILGORE. When was that?

General SOMERVELL. I don't know just when it was approved [examining papers], but I do know that Mr. Ickes answered a letter from the President on the subject on June 22.

Senator KILGORE. Of this year?

General SOMERVELL. Of last year.

The CHAIRMAN. We will recess until 2 o'clock.

(Whereupon, at 1:30 p. m., the committee recessed until 2 p. m. of the same day.)

¹ Exhibit No. 1149, appendix, p. 9906.

AFTER RECESS

The hearing reconvened at 2:10 p. m., Senator Truman presiding.

The CHAIRMAN. The committee will come to order. Senator Kilgore, you were asking some questions, I believe, when we recessed. Do you want to proceed now?

Senator KILGORE. General, the representatives of the Imperial Oil Co. were at the conference after which Dean Graham really drafted the memorandum?

General SOMERVELL. Yes, sir.

Senator KILGORE. Did you believe that they knew anything about that region up around Norman Wells?

General SOMERVELL. Yes, sir.

Senator KILGORE. What attention did you give to their letter written to General Carter on May 7?

General SOMERVELL. I don't know whether that letter was ever referred to me, but certainly the hazards of the enterprise as outlined in there, if that is the one, were explained to me and I was thoroughly familiar with those.

Senator KILGORE. They in that letter, which was 4 days after the April 29 conference, did not advocate going ahead with the Norman Wells project.

General SOMERVELL. That is right.

Senator KILGORE. Did you know about that?

General SOMERVELL. Yes, sir; they were quite pessimistic about it.

Senator KILGORE. What weight did you give to their recommendations on it then?

General SOMERVELL. The only thing to do was, our need was so great that I decided to disregard them.

Senator KILGORE. Did you read the letter of Standard Oil of California with reference to oil supply in Alaska for the proposed operation?

General SOMERVELL. No, sir.

Senator KILGORE. Those people were experts in the oil business, were they not?

General SOMERVELL. Oh, yes.

Senator KILGORE. In fact, they are the present consultants on this job, aren't they?

General SOMERVELL. That is right, sir.

Senator KILGORE. In that letter, they recommend very strongly—that was their letter of April 1, 1943, headed "Canol project," and they say there—at that time they were consultants for the Government [reading from Exhibit No. 1142]:

After making a careful study of the project as outlined in conjunction with the constructors and architect-engineer, this company addressed a letter to the Secretary of War on June 4, 1942, copy attached, in which we pointed out the considerable time that must elapse before a substantial supply of aviation gasoline could be made available through operation of the White Horse refinery, and the uncertainty as to the availability of a sufficient or permanent crude supply at Norman.

And then they go ahead with a complete discussion of the pipe line, the refinery project, and the products lines, and state what they understand to be their responsibility; and in conclusion state:

In conclusion, our position with respect to the refinery, crude pipe line and gasoline pipe lines is that—

(a) From an operating and economic standpoint, the refinery and crude pipe line are not justified to accomplish the military objective as we understand it.

(b) The gasoline lines are the most reliable and economic means of distributing in the shortest possible time the necessary quantities of petroleum products to the areas where required.

(c) The basic design features of the refinery and crude and gasoline pipe lines are sound within the limits imposed by the War Department.

Did you read that letter?

General SOMERVELL. No, sir. To whom was it addressed?

Senator KILGORE. That was addressed to Coghill.

Senator FERGUSON. Executive Office of the President, Bureau of the Budget.

General SOMERVELL. Yes, sir. It was not sent to me.

Senator KILGORE. Did you know anything of that letter?

General SOMERVELL. No, I don't remember it. It may have formed a part of the report—

Senator KILGORE (interposing). Didn't the Bureau of the Budget furnish you a report, of which that letter was an exhibit?

General SOMERVELL. They furnished a report which was investigated by my office; yes, sir, but I don't know whether that letter was sent over with it or not.

Senator KILGORE. And you don't know whether you studied it, whether you even saw it, and therefore you couldn't state that you had let it enter into your calculations at all?

General SOMERVELL. That is right.

Senator KILGORE. Did you believe at that time that the Office of the Petroleum Administrator for War was qualified on petroleum matters, that they had qualified personnel?

General SOMERVELL. They had by that time; yes, sir.

Senator KILGORE. By when?

General SOMERVELL. By this summer.

Senator KILGORE. They didn't have, then, back in April 1942?

General SOMERVELL. I don't know of a single production expert on the staff at that time.

Senator KILGORE. And that was the reason you didn't consult them?

General SOMERVELL. No, sir; I didn't consult them because it was entirely outside of the Petroleum Coordinator's field, and it just wasn't part of his job.

Senator KILGORE. When you went up there in August 1942, did you go all over the job?

General SOMERVELL. No, sir.

Senator KILGORE. How much of it did you go over?

General SOMERVELL. I went over very little of the Canol job. Most of my time was spent on the highway. I did talk to Mr. Bechtel and with Colonel Wyman to a considerable extent. Most of my trip was confined to the highway and to the west of the highway, not to the wells themselves. I didn't go to the wells.

Senator KILGORE. Did you ascertain from them the situation and how long it was going to take to complete the line finally?

General SOMERVELL. Yes, sir.

Senator KILGORE. At that time, did they give you then an understanding of the tremendous amount of transportation involved in building this refinery, in building this pipe line?

General SOMERVELL. Yes, sir.

Senator KILGORE. And also building the necessary access roads which must be considered as a part of it?

General SOMERVILLE. Yes, sir. I would like again to make the point, however, that we are talking about ocean shipping, and that the amount of transportation involved in this project has very little to do with ocean shipping.

Senator KILGORE. Well, you have to ship stuff some way to get it there.

General SOMERVILLE. Yes, but—

Senator KILGORE. And I haven't been talking about ocean shipping. I have been talking about all sorts of shipping—over Great Slave Lake, and over the winter route, in fact two or three winter routes up there, and the Alcan Highway and everything else.

General SOMERVILLE. That is why I think you are on the wrong track, and that is what I keep trying to correct, sir. In other words, the decision with reference to this project had to do with ocean shipping. It didn't have anything to do with shipping up the Mackenzie River or shipping over the Alcan Highway.

The CHAIRMAN. But I think, general, you have to take every method of transportation into consideration when you are considering a project of this sort.

General SOMERVILLE. Well, we did, Senator, but the critical—

The CHAIRMAN (interposing). When you say the whole thing is founded entirely on ocean shipping, I think you are just as wrong as you say the Senator is.

General SOMERVILLE. But as a matter of fact, you may think I am wrong, but that is the basis of the decision.

The CHAIRMAN. Of course, that is up to you.

Senator KILGORE. It was decided solely on the question of ocean shipping?

General SOMERVILLE. To a very large extent; yes.

Senator KILGORE. Wait a minute, you limit me to ocean shipping.

Did you know that General Robins of the Corps of Engineers had recommended barges up the inland waterways to Skagway for movement of petroleum products?

General SOMERVILLE. No; he never made such a recommendation.

Senator KILGORE. He didn't?

General SOMERVILLE. No, sir; I never heard of it until this minute.

Senator FERGUSON. Could it have been given to Dean Graham and some of the other men?

General SOMERVILLE. It could have been; yes, sir.

Senator FERGUSON. You are saying he never made the recommendation to you.

General SOMERVILLE. Yes, sir.

Mr. FULTON. That recommendation, General Somervell, was made, according to his testimony, after your directive and in the presence of the Imperial Oil people who did make a memorandum of it in which they quoted him as having said you could ship ten times as much oil with one-tenth the trouble by barge.

General SOMERVILLE. I would hardly call that a recommendation, Mr. Counsel. I would call that a reckless statement, and it was made entirely unofficially, and if it was to carry any weight it should have been made to me and not to the Imperial Oil Co.

Mr. FULTON. Had you asked General Robins for any recommendation?

General SOMERVELL. I have asked him about it; yes.

Mr. FULTON. Had you at that time?

General SOMERVELL. No.

Senator KILGORE. Let me read you part of General Robins' testimony here.¹

Question. After that conference, the Imperial Oil people made a memorandum of the discussion, and their memorandum states: "General Robins, after reading the memorandum by Colonel Graham, commented that 10 times the volume of deliveries contemplated by pipe line could be made by barges already available from inland United States rivers, and at one-tenth the cost and effort, but added that he was prepared to do his best to carry out the orders issued."

General Robins, would you care to comment on that?

His answer was this:

Just to this extent: It was a very obvious remark, and what led up to it was that the oil companies were very reluctant to go into this thing, and they were talking along that line. I was just trying to impress on them that, though that might be the case, we had a job to do and, whether they liked it or not, we were going to do it.

Question. However, nobody had consulted you officially concerning the alternative method before the job was given to you; is that right?

General ROBINS. That is right.

Did you know of that testimony?

General SOMERVELL. No, sir; and if he was of that opinion it was distinctly his duty to have reported it to me.

Senator KILGORE. Now you received the report of the Bureau of the Budget, did you not?

General SOMERVELL. Yes, sir.

Senator KILGORE. And when the Bureau of the Budget and the General Staff of the Army questioned the advisability of completing the project in the late spring of 1943, that is, just this spring, why did you conclude to complete it? What were your reasons for carrying it on to completion?

General SOMERVELL. In the first place, the Bureau of the Budget did not conclude not to complete it, and neither did the General Staff.

Senator KILGORE. They questioned the advisability of completing it.

General SOMERVELL. I don't know about the General Staff's questioning it.

Senator KILGORE. I am asking you as to what your conclusions were.

General SOMERVELL. Yes, sir. I just wanted to get the question clear. The Bureau of the Budget sent over a letter in which they asked the War Department to consider the project in the light of the strategy, and after viewing the project in the light of that strategy, to make a decision on whether they would continue with the project. I have a letter here, if you would like for me to read it.

Senator KILGORE. Let me read from the memorandum of July 6, 1943 [reading from Exhibit No. 1147]:

The Assistant Chief of Staff, G-4, directed this office to study the report and submit recommendations as to the advisability of (a) stopping all construction on the Norman-White Horse pipe line and the White Horse refinery; (b) completion of the Norman pipe line and reduction of scope of the refinery; (c) stopping further search for oil in the Norman field.

General SOMERVELL. Yes, sir.

¹ See supra, p. 9481.

Senator KILGORE. That was their memorandum?

General SOMERVELL. Yes, sir.

Senator KILGORE. They then had questioned the advisability of stopping that work, had they not?

General SOMERVELL. They asked for our opinion on that; yes, sir.

Senator KILGORE. The question was, why did you conclude, after those two questions were asked, to go ahead with it?

General SOMERVELL. For substantially the same reasons that I have given to you this morning.

Senator KILGORE. Didn't you in your memorandum to General Marshall set forth all your reasons?

General SOMERVELL. I set forth three or four. I have a brief of them here if you would like to have them, sir.

Senator KILGORE. I think I have it here.

General SOMERVELL. Here it is. I said [reading from Exhibit No. 1147]:

The material and equipment in substantial part are on hand and in the vicinity of the project. A substantial expenditure of money and manpower has already been made and construction is well underway. Returns from this project will be realized from 1 to 2 years earlier than from projects now under consideration lying outside the United States in areas which are not controlled by the United States. Completion of the project will affect a material saving in critical transportation facilities. The abandonment of the Canol project at a time when it is ahead of projects which the United States does not control would appear inconsistent and unwise.

Senator KILGORE. Were those all the reasons you had for going ahead?

General SOMERVELL. That is about the way I summarized them there; yes, sir. I have gone into them at length this morning.

Senator KILGORE. Did you withhold from General Marshall's consideration in that memorandum any reasons that might justify the Canol project which you later gave to the joint chiefs of staff just recently?

General SOMERVELL. I was in India when the Joint Chiefs of Staff considered it. I was not consulted, nor did I give them any opinion.

Senator KILGORE. Did your staff furnish them any?

General SOMERVELL. I haven't any idea. Naturally, they would be brought into it. I was 15,000 miles away.

Senator KILGORE. You don't know the reasons your staff might have given to the joint chiefs of staff?

General SOMERVELL. No, sir.

Senator KILGORE. Looking at the picture now, do you justify this project on the ground that it is necessary for the defense of Alaska, or necessary for an offensive action?

General SOMERVELL. For an offensive action, and there is the further justification, which was not present in the beginning, that it is an extremely valuable oil reserve.

Senator KILGORE. For offense, are you thinking in terms of present offense or far distant offense?

General SOMERVELL. I explained that to you in secret session this morning.

Senator KILGORE. You realize, of course, if we were thinking now in terms of a present offensive, that the tonnage used up there could

have been built up of more gasoline than we could get for a present offensive.

General SOMERVELL. That statement has been made several times, Senator, without any support, and I question that very seriously.

Senator KILGORE. Will you furnish us, then, the tonnage?¹ You say it is without any support. We are just going on the figures we got from the War Department. That is all we have to go on.

General SOMERVELL. I will be glad to, sir. I will set it up and set up what went—

Senator KILGORE. By the various routes.

General SOMERVELL. Yes, sir.

Senator KILGORE. If you were considering this project today, say it hadn't been started, what action would you take today that you didn't take back in 1942?

General SOMERVELL. Instead of building a 3,000-barrel refinery and a 4-inch pipeline, I would build a 20,000-barrel refinery and a bigger pipeline.

Senator KILGORE. Would you leave it up to Mr. Graham to do the investigation again?

General SOMERVELL. I would welcome Colonel Graham's investigation on any subject.

Senator KILGORE. Do you know what experience he has had with reference to petroleum?

General SOMERVELL. Yes, sir.

Senator KILGORE. How much?

General SOMERVELL. He was president of a refinery company for about 10 years.

Senator KILGORE. What refining company?

General SOMERVELL. Indian Refining.

Senator KILGORE. Now that is one thing I want to ask you about. Are you familiar with the charge Fulton Lewis made last Friday?

General SOMERVELL. Very. It is an outrageous attack on an extremely capable man of very high character, and without any foundation whatsoever; moreover, on a man who is sick in the hospital and can't defend himself, and Mr. Lewis knew it. In my whole experience, I have never run into a more outrageous abuse of the radio.

Senator KILGORE. You think, then, that the charge is an absolute falsehood that he took \$1,200,000 out for himself and his son-in-law and wrecked the company?

General SOMERVELL. I know it is.

Senator KILGORE. That was the Indian Refinery, wasn't it?

General SOMERVELL. Yes. As a matter of fact, Colonel Graham and Dr. Frits, who was not then his son-in-law, were asked to look into this company by a syndicate that owned it. They came back after looking into it and reported that it was in terrible shape, that it was being operated on an extravagant basis and was overextended, and recommended that it reduce its activities and that the plant be modernized. They more or less threw that report back at them and said, "If that is what you think about it, you take it and do all these things."

The first year they reduced the deficit in the company from \$2,000,000 to \$600,000, and the next year they put it in the black, and it stayed in the black until 1930. Now the figures that Mr. Lewis gave for the job were entirely wrong. He said, for example, that the sales

¹ Subsequently supplied, see appendix, p. 9909.

dropped from 24 million to \$11,000,000, where as a matter of fact they dropped from 24 million to \$20,000,000, and the actual output was more, and the reason for the drop was because the product price was less.

But aside from all that, it was a refining company that owned no crude, and like every other company of that kind, it found itself in difficulties as did the big companies when the depression came along. Up to that time, it had been in the black and making money.

The company then, despite the fact that it was pinched and did go into the red in 1930, was able to sell out at its book value to the Texas Co.

Now during this period, Colonel Graham developed the process for getting the wax out of lubricating oil, which every other company had been striving to develop. That is one of the greatest developments in the petroleum industry since the war, and naturally other companies wanted it, and the company was bought.

As far as this money is concerned, they were given an option to buy stock at par value. That was the money. They did buy the stock at par value. They sold the stock, naturally, when it went above par value, and they paid the money into the treasury and they got the stock and they sold it; they sold some of it for profit, some of it for a big profit, and some of it at a loss, and if it is any crime to make money on that basis, I don't know about it.

It seems to me that he has done a wonderfully fine job in managing the property, and I regard the attack on him as outrageous. I haven't attempted to go into the thing in any detail. I don't know anything about it other than what I have told you, but I have known the man for many, many years, and he has as fine a character as anybody in this room.

Senator KILGORE. General, just to make sure I am not incorrect, I believe you stated in your opening statement that you were warned by General Pyron and also by Dean Graham that the Norman fields might be a disappointment.

General SOMERVELL. That is right.

Senator KILGORE. When was that warning given to you?

General SOMERVELL. I think time and again; probably sometime in March or April, May, all through there.

Senator KILGORE. That was in '42?

General SOMERVELL. And clear up, sir, until we actually got the oil. We had a great deal of anxiety about that.

Senator KILGORE. I believe you also made the statement that the Bareco refinery was surplus in the United States at the time it was taken over. Are you sure that is a fact, or is it not a fact that objection was lodged to the dismantling of that refinery by the Petroleum Coordinator?

General SOMERVELL. I would like to ask General Pyron to answer that question.

Brig. Gen. W. B. PYRON (Army-Navy Petroleum Board). After it was decided to try to select a refinery which was available, the Petroleum Coordinator's office, as it was then, gave a list of refineries in the United States which were available for purchase. In that list there were several in California, several in Texas, including the Bareco. It was after investigation by the engineers and refining

advisers that it was found that this Bareco plant would fit this project better than any other.

Senator KILGORE. But the question was, Was it surplus, or were they not howling for more refineries to refine our crude?

General PYRON. No, sir. At that time there were 14 virtually new refineries either not operating or available for sale in Tyler, Tex., and several in California. The Russians bought two, and the engineers actually contracted for the Bareco plant and started dismantling it. Then Mr. Ickes said that he would like to have that plant to fit into another plant that the Sinclair Oil & Refining Co. proposed to construct down there. The Army engineers immediately suspended dismantling, and that suspension was for a period of perhaps 30 days or longer. Mr. Ickes' representatives came back to the Army and told them that it was all right, they found they didn't need it, that we could proceed with the procurement of that refinery and the moving of it.

Senator KILGORE. Now, General Somervell, to get something in your statement straightened out that was indefinite to me, at the time this directive was issued, you were a member of the General Staff?

General SOMERVELL. No, sir; that position terminated on the 9th of March.

Senator KILGORE. Prior to that you had held what position on the General Staff?

General SOMERVELL. I was G-4, Chief of the Section.

Senator KILGORE. And after March 9 you became head of the Service of Supplies, later to be called the Army Service Forces; is that correct?

General SOMERVELL. Yes, sir.

Senator KILGORE. And at the time the investigation started, you were an executive officer on the General Staff as G-4?

General SOMERVELL. That is right.

Senator KILGORE. But at the time the contract was let, you were in command of the Service of Supplies?

General SOMERVELL. Yes, sir.

Senator CONNALLY. General Somervell, I want to ask you a few questions of rather general character, and then I want to say, Mr. Chairman, that I got up out of bed to come here and I am running a temperature now. I am going to leave as soon as I get through and go to bed again.

The CHAIRMAN. I am very sorry you had to get out of bed, Senator, but I am mighty glad you are here.

Senator CONNALLY. As I understand your testimony, you do not profess that this was a good peacetime, post-war, economic, commercial proposition.

General SOMERVELL. That is right, sir.

Senator CONNALLY. You did not have that in mind when you initiated it, did you?

General SOMERVELL. That is correct, sir.

Senator CONNALLY. A big bomb is not a very good investment for peacetime, post-war purposes, is it?

General SOMERVELL. No, sir.

Senator CONNALLY. It is expendable, though, in war?

General SOMERVELL. Yes, sir.

Senator CONNALLY. These torpedoes that they drop, you would not invest in those as a commercial proposition in peacetime, would you?

General SOMERVELL. No, sir.

Senator CONNALLY. You would not think they were justified?

General SOMERVELL. No, sir.

Senator CONNALLY. So you were looking at this project, as I gather it, as a war instrumentality?

General SOMERVELL. That is correct, sir; entirely.

Senator CONNALLY. Of course, you knew you were going to lose money.

General SOMERVELL. Yes, sir.

Senator CONNALLY. Nearly all the other war instrumentalities lose money, do they not?

General SOMERVELL. Yes, sir.

Senator CONNALLY. We lose money downtown in the War Department and in the Navy Department, and probably up here on the Hill, and other places, do we not?

General SOMERVELL. Yes, sir.

Senator CONNALLY. Nearly everybody is making more money and getting bigger salaries than they did in peacetime. Did you at any time discover any evidence of collusion or graft or anything of that kind among any of your subordinates in carrying out this project?

General SOMERVELL. None whatever, sir.

Senator CONNALLY. Of course, matters of judgment might cause waste and yet they might be honestly brought about. Isn't that true?

General SOMERVELL. Yes, sir.

Senator CONNALLY. Now we talk about an alternative. You had an alternative. The alternative was to send tankers up through the inland passage.

General SOMERVELL. Yes, sir.

Senator CONNALLY. In order to get tankers up the inland passage you had to get the oil first to the inland passage, did you not?

General SOMERVELL. Yes, sir.

Senator CONNALLY. From California or somewhere down the line.

General SOMERVELL. Yes, sir.

Senator CONNALLY. And they would have been subject, of course, to hostile attack, would they not?

General SOMERVELL. Yes, sir.

Senator CONNALLY. Submarines and aircraft?

General SOMERVELL. That is right.

Senator CONNALLY. And then another thing: You did not have tankers, I understand.

General SOMERVELL. Yes, sir; that was very much in our minds.

Senator CONNALLY. It is very easy to say you ought to carry it by tanker, but when you haven't any tanker it is not very wise to adopt that method, is it, if you want to get the oil up there?

General SOMERVELL. No, sir.

Senator CONNALLY. About salvaging this thing, have you got a contract, when post-war conditions do come, that you may be able to dispose of it to the Imperial Co. or to the Canadian Government, or can we keep it?

General SOMERVELL. Yes, sir; we have a contract to dispose of it on the basis of value fixed by arbitration. That contract was drawn

originally when we thought there was some doubt as to the amount of oil that we would find there. Later on, we found a lot more oil than we expected to find. We had taken care of that by putting a proviso in the contract, and to answer your question, Senator, there is a supplement to the contract and it does include all the original provisions of the original contract.

Senator FERGUSON. It does?

General SOMERVELL. Yes, sir.

Senator FERGUSON. So it includes a new arbitration clause?

General SOMERVELL. It includes a renegotiation clause, so under the changed conditions we should make a different arrangement than the one we contemplated in the beginning, but to answer your question directly, sir, we did have that in there. We did have an arrangement for disposition, and we did have a provision in there for arbitration, and we did have a proviso that nothing could be dismantled without the consent of the Permanent Joint Board on Defense, on which we have an equal representation with Canada.

Senator CONNALLY. Was there any requirement that we must dispose of it or could we keep it after the war?

General SOMERVELL. It said that we gave them the option and if they did not exercise it then we were to take it to the Permanent Joint Board of Arbitration and get a decision from them as to what to do.

Senator CONNALLY. There has been some complaint about the acquisition of oil reserves and resources in foreign lands. Is it not true that right now there is an American mission in Persia and Arabia trying to develop and secure foreign oil rights in those territories?

General SOMERVELL. I think so; yes, sir.

Senator CONNALLY. Even though we might have sufficient oil for the immediate present, we all know that oil supplies are exhaustible.

General SOMERVELL. Yes, sir.

Senator CONNALLY. And long, long years in the future, it is a pretty wise policy, we agree, to acquire all the oil resources and reserves we may be able to acquire in foreign lands.

General SOMERVELL. Yes, sir; we think so most decidedly.

Senator CONNALLY. Another point: Is it not true that our reserves have been depleted at a larger rate of percentage during the war than Great Britain's or some of the other countries?

General SOMERVELL. That is correct, sir.

Senator CONNALLY. All the more reason why we should replenish those reserves by the acquisition of oil resources wherever we can find them; isn't that true?

General SOMERVELL. Yes, sir.

Senator CONNALLY. Who were these people when you started out on this who predicted failure; that you could not pump the oil through there and you could not build the line, and so on? Were those oil companies—domestic oil companies?

General SOMERVELL. No, sir; so far as I know there has never been any oil company that predicted we could not pump the oil through the line. I think that some oil company may have made the claim that we could not build the line. There has never been an oil company that has claimed we could not maintain it.

Senator CONNALLY. But you have done that. You have built it and you have maintained it?

General SOMERVELL. Yes, sir.

Senator CONNALLY. And it will be in operation sometime in the early spring?

General SOMERVELL. Yes, sir. That is the best answer to those people.

Senator CONNALLY. There is some criticism about the time. Is there any stopwatch on war developments and on construction matters? Is there any accurate way by which you can project these things in time of war?

General SOMERVELL. Not completely; no, sir. It is impossible to do it.

Senator CONNALLY. It is a hazard, the time hazard is always in there; is it not?

General SOMERVELL. The time hazard is present just as these other hazards are present.

Senator CONNALLY. By and large, then, you found no evidences of graft or corruption or collusion among your employees or the contractors working on this project?

General SOMERVELL. None whatsoever, sir.

Senator CONNALLY. I suppose you maintained, of course, an adequate inspection of the services on the job?

General SOMERVELL. We have, sir. Of course, speculation of one kind or another crops up anywhere, but so far there hasn't been any of it of any moment on this job.

Senator CONNALLY. I believe that is all, Mr. Chairman.

The CHAIRMAN. Senator Hatch.

Senator HATCH. I think the general has made himself abundantly clear by all the questions that have been asked, and the details which have been gone into. I want to generally summarize the picture to see if I understand exactly what was in your mind. First of all, we were at war and a very desperate war. We needed oil. There was a lot of talk about shortage of oil everywhere. We needed shipping. There was a lot of talk about the shortage of shipping.

General SOMERVELL. That is right.

Senator HATCH. You were faced with what you thought were two more or less desperate situations, in which the welfare of this country was at stake. You ascertained there was oil at Norman wells by taking perhaps a wild gamble—it may have been such. There was a possibility of developing an oil reserve in that region. You took that chance. You made the decision yourself.

General SOMERVELL. That is right.

Senator HATCH. You passed the buck to no one else?

General SOMERVELL. That is right.

Senator HATCH. I think that is all, General.

Senator CONNALLY. May I ask one more question along the line that is suggested by Senator Hatch? You not only wanted more oil but you wanted it in a certain area, didn't you?

General SOMERVELL. Yes, Senator.

Senator CONNALLY. And you said something about so far this was defensive. It might be offensive, might it not?

General SOMERVELL. Very much so.

Senator CONNALLY. If we carry on an offensive down through the Aleutians against our enemy, Japan, this would be an offensive resource, would it not?

General SOMERVELL. Definitely; yes, sir.

Senator CONNALLY. As long as they were knocking, of course, it was defensive. We had to be prepared to meet their attack.

General SOMERVELL. That is right, sir.

Senator CONNALLY. But a defensive weapon may always become an offensive weapon when properly used, may it not?

General SOMERVELL. That is right.

Senator HATCH. One other question. This question of oil is one that has interested me for a long, long time, the shortage of it.

Senator CONNALLY. To a man who has oil wells, of course it is interesting.

Senator HATCH. Now, there was a man named Hitler who made an attempt to discover oil in the Caucasus. What do you suppose that cost him?

General SOMERVELL. It cost him Germany.

Senator HATCH. It cost him Germany; that is right. That is all, Mr. Chairman.

The CHAIRMAN. Senator Ferguson.

Senator FERGUSON. General Somervell, you gave us the reason that you did not talk to Mr. Ickes about the oil. Of course, you realized that he had charge of the entire oil production and supply in the continental United States.

General SOMERVELL. That is correct, sir.

Senator FERGUSON. And have you read his testimony about that; that he got his information from, for instance, London, and from the Mayflower Hotel, rather than from the Army?

General SOMERVELL. No, sir. I have not read the testimony, but I have heard him say this. He has said it to my face.

Senator FERGUSON. He has told you that?

General SOMERVELL. Yes, sir.

Senator FERGUSON. What are the facts on that from your viewpoint?

General SOMERVELL. Well, from my viewpoint the Secretary of Interior is responsible for a good deal here in the United States. He is responsible for coal supply, for example. He has the same position with reference to coal. We don't feel that it is incumbent on us to speak to him about buying coal in India or Africa or any other place where we happen to be. We do feel it is incumbent on us to speak to him about buying coal in Alaska, because he has charge of the mines in Alaska, but where he has no proprietary interests, and where he has no jurisdiction, it would be extremely rare for us to go to him except to get his advice as an expert. Now, as I have said before—

Senator FERGUSON (interposing). It is your contention that at the particular time he did not have any experts who could have obtained the facts for you in this field?

General SOMERVELL. Yes, sir; that is correct.

Senator FERGUSON. Who was the contracting officer on this pipe line and refinery? Was it Theodore Wyman, Jr.?

General SOMERVELL. Yes, sir.

Senator FERGUSON. He left the project at what time?

General SOMERVELL. He left the project in the spring of '43.

Senator FERGUSON. Do you know why he left?

General SOMERVELL. Yes, sir.

Senator FERGUSON. Why?

General SOMERVELL. Because we wanted to put it in more competent hands.

Senator FERGUSON. Was he not competent? Was it being delayed because Wyman was not competent?

General SOMERVELL. Colonel Wyman is one of the best drivers and people to get things done that I know of. He has an unfortunate personality which has reacted against him.

Senator FERGUSON. Did he know anything about oil, pipe lines, refineries?

General SOMERVELL. He is one of the best construction men in the country.

Senator FERGUSON. Of that particular type of construction?

General SOMERVELL. Of every construction; yes, sir.

Senator FERGUSON. I am talking about oil refineries.

General SOMERVELL. For the oil refineries we had Bechtel and also the California Standard.

Senator FERGUSON. Had the Bechtel firm ever erected a refinery before?

General SOMERVELL. They are refinery engineers.

Senator FERGUSON. Who is the engineer? Bechtel?

General SOMERVELL. Yes, sir.

Senator FERGUSON. A refinery engineer?

General SOMERVELL. Yes, sir.

Senator FERGUSON. And he had constructed pipe lines before?

General SOMERVELL. Yes, sir.

Senator FERGUSON. Then, as I understand it, Colonel Wyman was removed because he was not efficient?

General SOMERVELL. Yes.

Senator FERGUSON. Who took his place?

General SOMERVELL. General Worsham.

Senator FERGUSON. Going to the question of when you were going to complete it, I think you say now that the date of completion being in the fall of 1942, of course, was too optimistic.

General SOMERVELL. That is right.

Senator FERGUSON. And you believed that it could be completed by the next summer; that would be in the summer of '43?

General SOMERVELL. The end of last summer; yes, sir.

Senator FERGUSON. Is it not true that you have transported all of the gas and oil, petroleum products, that you have needed in Alaska for both defensive and offensive warfare by other means than this particular means of this refinery and this pipe line over in Norman wells?

General SOMERVELL. Yes, sir; of course.

Senator FERGUSON. And you are going to continue to do that for another 6 months?

General SOMERVELL. It won't be quite that long, but that is about right.

Senator FERGUSON. Around 5 to 6 months?

General SOMERVELL. Yes.

Senator FERGUSON. There has been a great change, as far as the defensive set-up is concerned, has there not?

General SOMERVELL. Yes, sir. There was a complete reversal.

Senator FERGUSON. Yes. You need very little oil now for the defense of the Aleutians and Alaska?

General SOMERVELL. Well, Senator, I went into all this in secret session. I don't want to get into an argument on defense and offense and what we are going to do. Let me just say this: There is no question that there is a demand for these products far in excess of what we can supply from this installation right now, and there will be a continuing demand throughout the war.

Senator FERGUSON. Rest assured that I am not going into any question of strategy that may have been discussed in the secret session. As a matter of fact, we have been able on the inland passage to transport material without any loss up to the present time.

General SOMERVELL. Oh, yes; decidedly.

Senator FERGUSON. And we have transported all the gas we needed, both for offense and defense.

General SOMERVELL. That is correct.

Senator FERGUSON. And we are going to do it for another 5 months, without any doubt.

General SOMERVELL. That is correct.

Senator FERGUSON. And then is the only time that this project can come into being?

General SOMERVELL. That is correct.

Senator FERGUSON. You stated this morning that you had pumped oil into the line for some 25 miles. I am not quite certain that I understand why you would give us that. How is that material to this issue, merely that 25 miles of it would stand pumping?

General SOMERVELL. The point was made that we couldn't pump it through the line because it would freeze.

Senator FERGUSON. Have you pumped it through the line? You would not consider pumping it into the line and filling the line pumping it through, would you?

General SOMERVELL. Yes. Pumping it through wouldn't be until it comes out the far end of it, of course, but if you pump it for 200 miles it is pretty good evidence that you can pump it for 200 miles.

Senator FERGUSON. But it doesn't flow at the present time? The pipe is full, is that correct?

General SOMERVELL. No. It has been pumped in. The end of the pipe is open and we are progressing every day, and by Christmas we will be 85 miles down the line, and by New Year's we will be some more miles, and so on.

Senator FERGUSON. I do not understand that you are pumping this oil out onto the ground?

General SOMERVELL. No. The end of the line is open, you see, and we are pumping in the direction of the pipe heading, the pipe going this way, coming together [indicating]. We are pumping from Norman wells now in an effort both to test the pipe line and to fill it.

Senator FERGUSON. You stated this morning that the President had approved this project.

General SOMERVELL. Yes, sir.

Senator FERGUSON. Will you state when? Was it in a directive?

General SOMERVELL. I don't know exactly when. I have a letter here from Mr. Ickes in answer to one from the President. Mr. Ickes' letter is dated the 22d of June. How long he took to reply to the President's letter I don't know.

Senator FERGUSON. Do you know what facts were furnished to the President when he approved it?

General SOMERVELL. No, sir.

Senator FERGUSON. What is the form of the approval of the President?

General SOMERVELL. A letter to Mr. Ickes.

Senator FERGUSON. What does it say, showing the approval?

General SOMERVELL. I am not at liberty to give it out to you.

Senator FERGUSON. You can give it to us in private session.

General SOMERVELL. Yes, sir; or you can get it from the White House. It is not part of the War Department files, whereas the letter from Mr. Ickes to the President was furnished to the War Department.

Senator FERGUSON. It had never been furnished to the committee with information along that line, so far as you know?

General SOMERVELL. Not so far as I know.

Senator FERGUSON. Do you have the data that was furnished to the joint chiefs of staff recently on which they acted?

General SOMERVELL. No, sir; I was out of the country.

Senator FERGUSON. You don't have that data?

General SOMERVELL. No, sir. I was in India at the time and all of those decisions were taken without my knowledge or help in any way.

Senator HATCH. There is one more question I want to ask, Mr. Chairman, in the light of your answers to Senator Ferguson. You say we have not needed this oil for defensive purposes. Very fortunately, we have not in the past; perhaps we do not need it today.

General SOMERVELL. We do need it, absolutely.

Senator HATCH. Assuming that we do not, under the emergencies and exigencies and uncertainties of war, can you afford to take a chance that we might not need that oil in the future?

General SOMERVELL. No, sir; most decidedly.

Senator HATCH. Just as one member of the committee, I would say if you took a chance on being short of oil when you could develop it that I would follow your advice and vote for your court martial.

General SOMERVELL. I would expect you to.

Senator BALL. General, I understood you to say in answer to a question from Senator Kilgore this morning that if in April 1942 you had realized that this would not be in operation, production, until the spring of '44, you probably would not have approved it.

General SOMERVELL. That is correct, Senator.

Senator BALL. In other words, you did not anticipate this nearly 2-year construction interval, during which obviously the major emergency in the Alaskan field would have been over?

General SOMERVELL. That is right, sir.

Senator BALL. It seems to me that from that fact, the conclusion is inevitable that probably not sufficient study had been given to the difficulties of construction here and the possible alternative ways of getting oil up there and the length of time it would take before you made your decision. I realize, as I think all of us do, that you were under tremendous pressure at that particular time, but it seems to me that is the main fault the committee has to find with this project, that it was initiated without checking thoroughly and without sufficient information as to how long it was likely to take, how much it was likely to cost, not only in dollars but in materials, transportation, manpower, and all the rest.

General SOMERVELL. The conclusion is not inevitable to me, Senator, by any manner of means. I think he said the end of 1944, but whether he did or not, it was quite obvious that we could have pushed the project much harder than we did. It is quite obvious that conditions have changed very materially. It is quite obvious that with the change in the conditions we changed our attack on the problem. We have a different situation facing us now than we had then. We had a situation then where we were on the defensive and I might have felt at that time—this is all hindsight—that the Japanese might be in that part of the country before we could get the job finished.

Senator BALL. The Skagway storage and the products pipe lines along the trail, and from Skagway to Whitehorse, are in operation now, for the most part, are they not?

General SOMERVELL. Yes, sir.

Senator BALL. And yet the directive to construct them was issued June 29, as I recall.

General SOMERVELL. That is right.

Senator BALL. Considerably later than the other.

General SOMERVELL. And we put the pressure on getting those finished because of the very thing that you are talking about. They are not all the way through to Fairbanks by this time, but they are in operation from Skagway to Whitehorse and from Whitehorse to Watson Lake and part of the way from Whitehorse to Fairbanks.

Senator BALL. You testified this morning, I think, that you had never seen this counterproposal of Standard of California to build storage at Prince Rupert, I believe, inland from Prince Rupert, and get there either by rail or by ship, use that as a basis for storage to supply Alaska. You had never seen that?

General SOMERVELL. I don't think I have; no, sir.

Senator BALL. I wonder why that never was referred to you since they were the consultants on this Canol project and it was related to that, and you had ordered the Canol project. Why was it never referred to you?

General SOMERVELL. Probably they threw it out down along the line as inadvisable.

Senator BALL. I was interested in that seven million for demobilization. That kind of intrigues me. Is that to be spent by the contractor—civilian contractor—on the job? Is that an estimate of his expenditures?

General SOMERVELL. No, sir. That is to be spent to clean up the job. Part of it will be spent through the contractor and part of it will be spent direct.

Senator BALL. But seven million for 10,000 men is \$700 apiece to get them out of there. We thought we were being pretty generous when we voted mustering-out pay of two to five hundred dollars each.

General SOMERVELL. That is to pay the way out, to pay the cost of transportation, to get all the equipment out of there.

Senator BALL. Seven hundred is still quite a bit of money for 10,000 men.

General SOMERVELL. As I say, if we don't spend it, it is still in the same position. In other words, there is that much set aside in the estimate and I do not know whether you have ever tried to buy a passage from here to Norman wells, but I think you will find it will

cost you at least \$700. The commercial rate from Edmonton to Norman wells is \$235.

Senator FERGUSON. That is by plane.

General SOMERVELL. The only way you can get there.

Senator FERGUSON. There are not 10,000 men in Norman.

General SOMERVELL. No, no. They are scattered all the way from Norman to Whitehorse. A good many are in Whitehorse.

Senator FERGUSON. That fact alone has caused the price that has to be paid for this service; isn't that true? It has been so far away and hard to get to.

General SOMERVELL. That has increased the cost of the project tremendously.

Senator FERGUSON. This is a cost-plus contract?

General SOMERVELL. Oh, yes.

Senator FERGUSON. Were you responsible personally for removing Colonel Wyman?

General SOMERVELL. I made the final decision; yes.

Senator FERGUSON. You made the final decision?

General SOMERVELL. Yes, sir.

Senator FERGUSON. Can you state the facts upon which he was removed, his inefficiency? I had understood the project had gone along in fine shape.

General SOMERVELL. The project had gone along in fine shape, and as I said, sir, it was not so much his driving the job but some unfortunate personal traits which caused me to do it.

Senator FERGUSON. Was it personal or was it his inefficiency on the job?

General SOMERVELL. It was mostly his personality, which of course reacted on his relations with other people.

Senator FERGUSON. Relations with the contractors on the job?

General SOMERVELL. With them and the Canadians and with his own subordinates.

Senator FERGUSON. Is he now in the United States?

General SOMERVELL. No, sir.

Senator FERGUSON. He is out of the United States?

General SOMERVELL. Yes, sir.

Senator FERGUSON. Doing the same kind of work?

General SOMERVELL. No, sir. He is doing the same kind of work, but entirely with troops, and he is probably giving a very good account of himself. He is a fine field soldier.

The CHAIRMAN. Senator Moore, did you have any questions?

Senator MOORE. Thank you, Mr. Chairman. I should like to make a suggestion here and put some figures in that might be revealing as to the stress that may be laid, as General Somervell said, on the large reserves of oil that have been developed in Alaska, or in Norman wells, stating that it was the largest reserve that had been discovered in the last 15 years on the North American continent, but I am sure that General Somervell will find that very decidedly wrong.

I want to cite the fact that the development at Goldsmith in west Texas, in 1934, has developed a reserve of 200,000,000 barrels; and in 1934 at Santa Maria Valley, Calif., a reserve was developed of 125,000,000 barrels.

In 1935, at Lafitte, La., there was a reserve developed of 150,000,000 barrels, and in 1935, at Monument, N. Mex., there was a reserve

developed of 190,000,000 barrels. In 1935, at Anahuac, Gulf coast, Tex., there were 250,000,000 barrels.

In 1936, at Wasson, west Texas, there was a reserve of 550,000,000 barrels, and in 1936, at Talco, east Texas, 150,000,000 barrels, and in 1936, at Wilmington, Calif., a reserve of 500,000,000 barrels.

In 1935, at Roddessa, La., there was a reserve of 100,000,000 barrels; in 1931, in east Texas, a reserve of 5,000,000,000 barrels.

General SOMERVELL. When was that discovered?

Senator MOORE. 1931; and Hastings, Gulf coast, 1934, a reserve of 400,000,000 barrels; Oklahoma City, 1928, a reserve of 650,000,000 barrels; in Conroe, Tex., and Louisiana combined, in 1931, a reserve of 700,000,000 barrels; in Fort Bend County, Gulf coast of Texas, in 1931, a reserve of 275,000,000 barrels; in North Cowden, west Texas, a reserve of 250,000,000 barrels; in 1931 at K. M. A., north Texas, a reserve of 150,000,000 barrels; in Cut Bank, Mont., in 1932, was developed a reserve of 100,000,000 barrels; in 1934, at Fitts, Okla., a reserve of more than 100,000,000 barrels; in 1934, at Tom O'Connor, Gulf coast, 450,000,000 barrels; and in 1934, at Old Ocean, the Gulf coast of Texas, 150,000,000 barrels.

That makes no allowance whatever for enormous quantities of oil that can be developed and are being developed in what we call the Ordovician line prevalent in west Texas and New Mexico, of several billion barrels of oil.

I am putting these figures into this record, Mr. Chairman, only to show, aside from any question of the desirability or the feasibility of using this Norman Wells production during the emergency and during the danger that General Somervell has mentioned, that the hundred million barrels itself, however correct that may be, is a very small quantity of oil as compared with the necessary reserve throughout the country, either in war or peace, and this is no quantity of oil that would be of any emphasis whatever as to the continuation of this project. It is only limited to the desirability of whether now, whether there has been a mistake made or not, this estimated small quantity of oil justifies the continuation of this project or whether it would develop the desirability of abandoning it and letting it be a mistake as water over the dam.

That was all I had to say, and I thank you, Mr. Chairman.

The CHAIRMAN. Mr. Fulton?

General SOMERVELL. Wait a minute, I would like to say a little something. In the first place the Senator is talking about 100,000,000 barrels of oil. I don't know where he got the figure. That is not the figure I gave to you.

Senator MOORE. I beg your pardon, I thought you figured you had a reserve there of 100,000,000 barrels.

General SOMERVELL. No, sir. I said the Norman wells field alone amounted to—

Senator MOORE (interposing). That is what I mean.

General SOMERVELL. So we are not talking about 100,000,000 barrels of oil. Now let's get that pretty clear.

The CHAIRMAN. That hasn't been completely proven yet, has it General? You started out with 2,000,000 barrels and then it has increased, of course, to 20,000,000, and your estimate is that it might be 100,000,000 and you don't know how much more, by drilling. The

Senator was basing his statement on the statement that was made here this morning by you.

General SOMERVELL. The Senator is basing his statement on one field alone, the Norman wells field.

The CHAIRMAN. That is right.

Senator FERGUSON. Isn't it today true that there are only about 4,000 barrels a day actually produced.

General SOMERVELL. I doubt if there is that much.

Senator FERGUSON. Not that much?

General SOMERVELL. There is no reason for producing more than that.

Mr. FULTON. The proven potential is 4,800 barrels according to Mr. Amberg; is that correct, Mr. Amberg?

Senator FERGUSON. Mr. Amberg, isn't that true forty-some hundred barrels?

Brig. Gen. W. B. PYRON (Army-Navy Petroleum Board). About 7,500 as of today.

Senator FERGUSON. That is the known production today.

General PYRON. That is the actual tested potential.

Mr. FULTON. By using an acidizing process.

General PYRON. They have used it on part of the wells.

Mr. FULTON. And if you use that, you lose possible ultimate production, do you not?

General PYRON. No, sir; on the contrary, you probably increase the ultimate production.

Mr. FULTON. What is the difference between the 4,800-barrel and the 7,500-barrel figure?

General PYRON. It is probably because you had a figure that was in August or September.

Mr. FULTON. No; we had the most recent figure from the War Department which Mr. Amberg was able to get.

Mr. AMBERG. The 4,800 figure was after acidizing only a few of the wells. I believe the 7,500 figure that you have given on the assumption of the acidization of the remaining wells, and possibly another well since I gave them to you; I don't know.

Mr. FULTON. The 7,500-barrel production compared with 1,400,000,000 barrels in the United States a day would be about one-fifth of 1 percent.

General PYRON. That is correct.

The CHAIRMAN. General, you wanted to make a statement, I believe.

General SOMERVELL. Yes; I just wanted to say that we are not talking about 100,000,000 barrels. Did I understand you to say correctly, Senator, that 100,000,000 barrels worth of oil wasn't worth considering?

Senator MOORE. No; I didn't say that, General. I said that 100,000,000 barrels is a small quantity of oil to talk about as justifying the Army in developing this reserve for the character of the war now as you have stated it offensively, as I think it is generally conceded that we are on the offensive now and that sources of oil could be supplied for that purpose to the territory that you desire much more economically and expeditiously than you could do it from this source, and I am only making this comment to the question as to whether this ought to be continued now since the turn of the war, not criticizing anything that has been done in the past or the economy of it, but whether now

since we can procure the oil from these other sources that we know we can, whether now we should continue, as I understand you say you want to continue it, the expansion of the project. That is the point that I am attempting to make.

I would like also to say just as a side remark, it may or may not contribute something to the general philosophy of scarcity that we have with reference to the reserves in the United States, we think, the industry thinks, and I may say in a modest way that I have been connected with the industry for 25 years and am pretty well devoted to it, and we think that you can develop ample quantities of oil for both war and peace within the continental limits of the United States.

General SOMERVELL. You disagree with Mr. Ickes.

Senator MOORE. I most decidedly do, and I shall have plenty to say about that hereafter whenever we have an opportunity.

Senator HATCH. I think Mr. Ickes' statement is based upon known fields that are now in existence.

General. there was one statement that was interesting to me in your testimony here and that was your proposal or your contract for renegotiation. Is that with the Imperial Co.?

General SOMERVELL. Yes.

Senator HATCH. I don't know whether you can answer this question or not, but if I am not mistaken, that is the only contract that provides for renegotiation with an oil company, on oil products sold as a part of the war effort. I think the oil companies are exempt from renegotiation.

General SOMERVELL. Mr. Amberg can probably give you better data, but I would like to say this about it. We weren't required to put this clause in the contract. We put it in there simply for the reason that I gave you, that we didn't know what was going to happen and we wanted the right to fold up and pull out, or in the case that we had good luck, as we did have, of going into the thing further. You tell about the legal side of it.

Mr. AMBERG. I think the General has practically answered what I was going to say.

Senator FERGUSON. You say at the present the contract now provides that you can renegotiate the whole contract, the wells, the pipes—

Mr. AMBERG (interposing). No, Senator. This is the contract with the Imperial Oil Co. that I am referring to, not the pipe-line contract.

Senator FERGUSON. As I understand the contract today, after the war all of the wells drilled on the Imperial Oil land, together with the casings, will be reverted to the Imperial Oil Co.

Mr. AMBERG. That is right, under the presently drawn contract, or to Canada. I believe they have some orders-in-council which gives them some interest in some of the wells.

Senator FERGUSON. That is right.

Mr. AMBERG. At least they don't come to the United States under the present contract.

Senator FERGUSON. It would terminate as far as the United States is concerned, and then the appraisal of the pipe line and the refinery is on a commercial value, and the commercial value would be nil because you wouldn't have any rights to any oil to put either in the pipe line or the refinery.

Mr. AMBERG. That is a question that I don't entirely agree with. I don't think there is any limit in time to when we could get the oil from the Imperial contract at the prices named in it.

Senator FERGUSON. Doesn't it terminate at the end of the war?

Mr. AMBERG. I haven't been able to find anything in the oil contract that sets a time limit on when we can get oil. It may have been so understood, I don't know, but the owner of the oil likewise has no outlet (except a small local one), except the pipe line, so it is as broad as it is long as to whether the owner of the oil would have an advantage over the owner of the pipe line, or the owner of the pipe line, who might buy it, would have an advantage over the owner of the oil. The chances are they would make some arrangements between them.

On this question of renegotiation, Mr. Fulton passed me down a question this morning. The original contract had struck out the printed clause about the act requiring a clause, because it was not understood to apply as Senator Hatch has said, to natural resource contracts of the type. Instead of that, a special clause was written in as follows; it is a part of article 18. This is the original oil contract with Imperial [reading from Exhibit No. 1087]:

It is understood and agreed by and between the parties hereto that after operations under the contract have been performed the contractor shall, upon request by the Government, renegotiate the contract terms in the sense that both parties hereto shall endeavor to effect such adjustment thereafter as may be equitable and mutually agreed upon by them. Such renegotiation shall be effected on or about a year from the date of this contract.

In other words, it was to be after the operations under the contract had been performed, according to the first sentence of it, and on or about a year from its date according to the second sentence.

Mr. FULTON. Which do you construe would be the one that would apply in a court of law?

Mr. AMBERG. I wish to finish and then I will answer that. There were two supplemental contracts within less than a year of this time. They said nothing one way or the other about renegotiation except that each of them provided that all provisions of the original contract are in full force and effect, so they continued the negotiation clause in there. It would seem to me rather clear that with one sentence saying that the negotiation must be after completion, and the other saying on or about a year from the date of the contract, that certainly the first provision would control over the indefinite second one. In any event, I am informed that the Imperial Oil Co. representatives have been asked to renegotiate and have had a conference starting on it and have raised no question on the time limit.

Mr. FULTON. Mr. Amberg, is there any indication that the War Department, in order to clear up that prior to the expiration of a year in August 1943, made any request for mutual understanding of that clause?

Mr. AMBERG. I know of nothing that indicates that, do you General Worsham?

General WORSHAM. No, sir.

Mr. FULTON. Further, with respect to that clause, unlike the one which was stricken out because it would not have to be inserted, would

not be required by law to be inserted, that clause does not provide for renegotiation under the renegotiation statute, does it?

Mr. AMBERG. That is right, it does not.

Mr. FULTON. It only provides that the two parties will get together and discuss the equities of the situation and what fairly could be or should be returned.

Mr. AMBERG. And to try to make an agreement.

Mr. FULTON. If it refused to make any agreement but was willing to discuss the matter, in other words, discussed it with you for days but was unwilling to give you back a penny, would you under that clause have a right to it?

Mr. AMBERG. No; we have no legal right to it.

Mr. FULTON. One other question, with respect to these figures that have been furnished to the committee by the War Department through your office during the last month or 2 months, have you any reason to believe those figures are inaccurate or do you wish to correct any of them that you have furnished?

Mr. AMBERG. I haven't the slightest thought that any of them are incorrect. If there are any errors they are unintentional. There may be more recent figures or they may be set up in a somewhat different way, but we have done all we can to give you all the facts.

They may have been given to apply in some way other than you may interpret them for use but we have endeavored to give you all the facts you wanted to know.

Mr. FULTON. I had one other question to General Somervell. When you were referring to the 100,000,000-barrel possible reserve, were you aware of the fact that it would require 100 years at the maximum rate of this pipe line to obtain that?

General SOMERVELL. Yes, Mr. Fulton, and consequently we would not attempt to pull it out through that pipe line.

The CHAIRMAN. I hope not. I have just received a letter from the Navy Department which I want to read into the record:

In connection with your inquiry as to whether the Navy ever was asked for its opinion relative to, or was asked to participate in, the so-called Canol project, a search has been made of the Navy's files, but we can find no communications indicating such an inquiry.

You likewise asked whether any oral inquiry on this subject had been made of the Navy Department. All of the cognizant officers and officials of the Department have been questioned and so far as we can develop the answer is no.

The Joint Army-Navy Petroleum Board did take up some phases of the question in October of 1943, apparently in getting some information for the Joint Chiefs of Staff. * * *

(The letter referred to was marked "Exhibit No. 1151" and is included in the appendix on p. 9911.)

General SOMERVELL. I don't think we have ever alleged that we asked the Navy, have we?

The CHAIRMAN. No; we asked the Navy, and that is the reply.

General SOMERVELL. It is not a Navy situation. Not any more than a bakery we might build or any other plant we might put up. It has nothing to do with the Navy—a bus line or anything else.

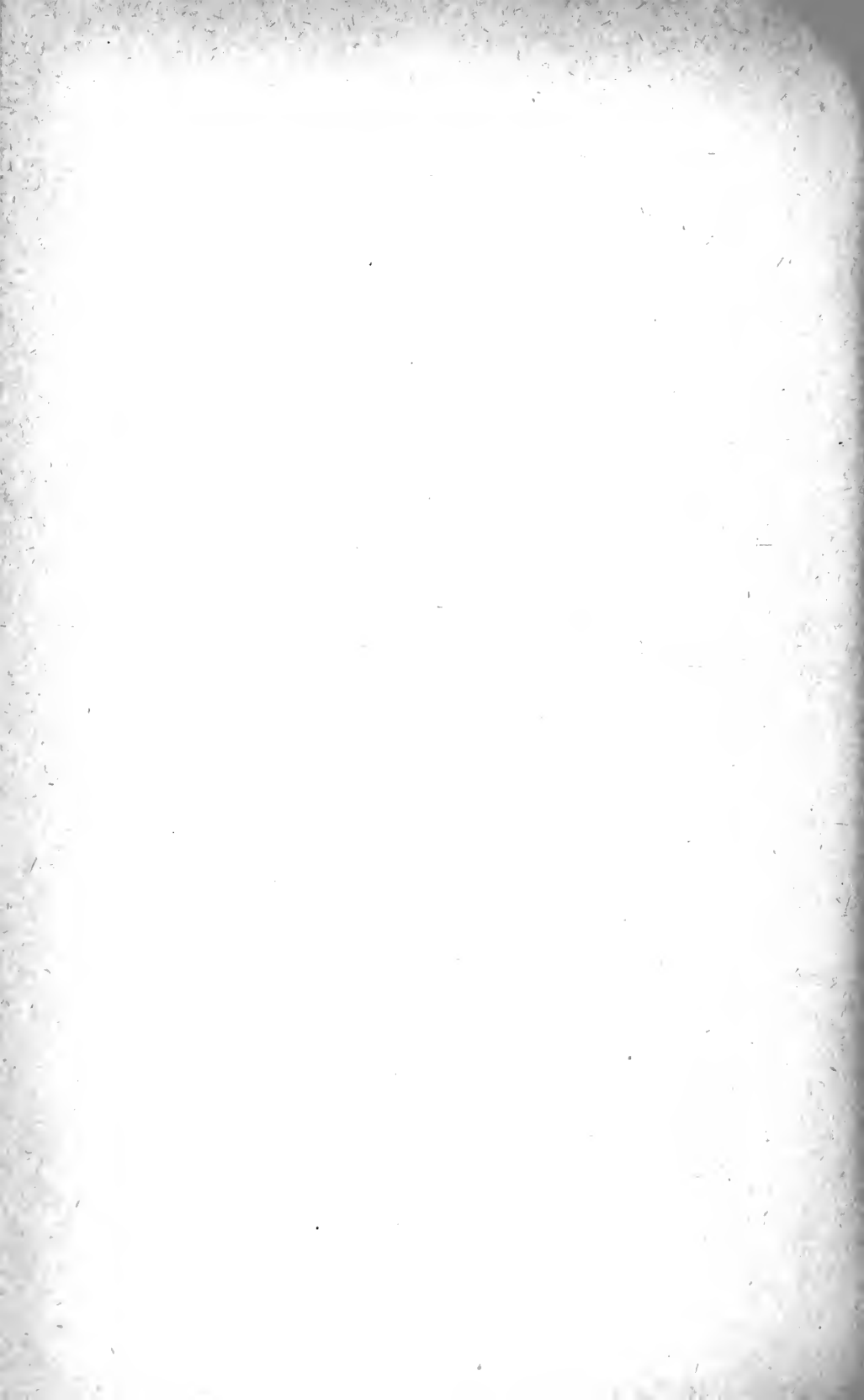
The CHAIRMAN. It might have to do with the Navy, because they burn a good deal of oil.

General SOMERVELL. Yes, sir; that part of it, and I think you will find that the Chief of Naval Operations, the Vice Chief of Naval Operations, and the officers in charge of petroleum for the Navy have all expressed themselves in favor of the project.

The CHAIRMAN. The Secretary of the Navy, however, has the other opinion.

The committee will stand adjourned.

(Whereupon, at 3:30 o'clock, the committee adjourned, subject to the call of the chairman.)



APPENDIX

EXHIBIT 1084

Negotiated Contract 40450
T. W.

CONTRACT No. W-2385-ENG-44 U. S. A. 7.20

FIXED-FEE OPERATION CONTRACT, WAR DEPARTMENT

Contractor and address: Standard Oil Company of California, 225 Bush Street, San Francisco, California.

Contract for: Operation for the United States of petroleum products pipe lines from the vicinity of Skagway, Territory of Alaska, to Whitehorse, Yukon Territory, Canada, and to other points in Alaska and Canada; and of terminal facilities for handling petroleum products at Prince Rupert, British Columbia, Canada.

Location: Territory of Alaska, and Province of British Columbia and Yukon Territory, Dominion of Canada.

Fixed fee: Nine Thousand Dollars (\$9,000.00) per month, payable in United States currency.

Estimated cost exclusive of fixed fee: One Hundred Seventy Thousand Five Hundred Dollars (\$170,500.00) per month, payable in United States currency.

Payment: To be made by—Finance Officer, U. S. Army, Edmonton, Alberta, Canada.

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to the following procurement authorities, the available balances of which are sufficient to cover the cost of the same: Eng. 30729-P-430-99-A0905-23.

Approved May 28, 1943.

THOMAS M. ROBINS,
Major General, Acting Chief of Engineers.

FIXED FEE OPERATION CONTRACT

THIS CONTRACT, entered into this 1st day of October, 1942, by and between THE UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this contract, and STANDARD OIL COMPANY OF CALIFORNIA, a corporation organized and existing under the laws of the State of Delaware, hereinafter called the Contractor, WITNESSETH THAT:

WHEREAS the Government desires to have the Contractor perform the work of operating pipe lines for the transportation of petroleum products from Skagway, Territory of Alaska, to Whitehorse, Yukon Territory, Canada, and to other points in Alaska and Canada, and of terminal facilities for handling petroleum products at Prince Rupert, British Columbia, Canada; the said pipe lines, terminal facilities, and their appurtenances being more particularly described in Article I hereof; and

WHEREAS the Secretary of War has requested the Standard Oil Company of California to perform the said work; and

WHEREAS the accomplishment of the above-described work under a cost-plus-a-fixed-fee contract, entered into after negotiations approved by the Secretary of War, and without advertising for proposals, is authorized by law; and

WHEREAS as a result of such negotiations, the Secretary of War has directed that the Government enter into a cost-plus-a-fixed-fee contract with the Contractor for the accomplishment of the above-described work; and

WHEREAS in order to expedite commencement of the said work and services a letter contract No. W-2385-Eng-44, dated October 1, 1942, was entered into

with the Contractor, it being contemplated that said letter contract will be supplemented by a formal contract; and

WHEREAS this contract is deemed necessary by the War Department to facilitate prosecution of the War;

Now, THEREFORE, the parties hereto do mutually agree as follows:

ARTICLE I—DESCRIPTION OF FACILITIES

1. The pipe lines and appurtenant structures (hereinafter collectively referred to as the "Facilities"), presently under construction for the Government under contracts with other contractors, are for the purpose of transporting approximately 6,500 barrels per day of petroleum products from Skagway to Whitehorse and to other points, and consist of the following principal structures:

(a) *Skagway-Whitehorse, Canol No. 2.* Receiving terminal, tankage, pumping station, delivery equipment, dwellings, and appurtenances at Skagway; pipe line from Skagway to Whitehorse with two intermediate pumping stations, delivery facilities, dwellings, and appurtenances; terminal facilities, tankage, dwellings, and appurtenances at Whitehorse; and terminal facilities and appurtenances for handling petroleum products at Prince Rupert, British Columbia.

(b) *Carcross-Watson Lake, Canol No. 3.* Pipe line from a connection to Skagway-Whitehorse line at Carcross, Yukon Territory, to Watson Lake, Yukon Territory, with pumping stations, tankage, delivery equipment, dwellings, and appurtenances.

(c) *Whitehorse-Fairbanks, Canol No. 4.* Pipe line from Whitehorse to Fairbanks, Territory of Alaska, with pumping stations, tankage, delivery equipment, dwellings, and appurtenances.

(d) *Fairbanks-Tanana, Canol No. 5.* Pipe line from Fairbanks to Tanana, Territory of Alaska, with pumping stations, tankage, delivery equipment, dwellings, and appurtenances.

ARTICLE II—STATEMENT OF WORK

1. The Contractor shall, during the term of this contract, furnish the labor, materials, tools, machinery, equipment, facilities, food, supplies, and services, not furnished by the Government, and do all things necessary for the operation of the Facilities in accordance with such requirements and specifications as the Contracting Officer may from time to time prescribe, subject to the limitations imposed by the nature of the Facilities and the quantity and characteristics of the petroleum products to be handled.

2. Where the terms "operate" or "operation" are used herein with respect to the Facilities, these terms shall be understood to embrace the work of management, supervision, training of personnel, testing, inspection, operation, maintenance, repair, accounting, and all other functions necessary to the accomplishment of the purposes stated in Paragraph 1 of this Article II.

3. The Contractor shall, to the best of its ability, operate the Facilities in the best and most workmanlike manner with qualified, careful, and efficient workers, and in strict conformity with the best standard practices, unless otherwise directed by the Government. The work to be done by the Contractor shall include, but shall not be limited to, the following:

(a) Not less than 30 days prior to the time when the portions of the Facilities designated in Paragraphs 1 (a), 1 (b), 1 (c), and 1 (d) of Article I hereof are each ready for operation, the Contracting Officer shall notify the Contractor in writing of the probable date of commencement of operations. Upon receipt of such notice, the Contractor shall proceed to hire or select the key personnel necessary for the operation of the designated portion of the Facilities, and when such personnel is available shall proceed to train such personnel in the duties and functions of their respective positions, at the Contractor's plants or elsewhere, in order that they will have obtained experience with the processes and operations involved in the said portion of the Facilities.

(b) During the period of construction of any of the aforesaid portions of the Facilities, the Contractor may, in its discretion, send its principal supervisory personnel to the site to inspect the Facilities in order to make plans for the required operations. The Contracting Officer shall currently inform the Contractor of any material change in the expected date of commencement of operation of any of the said portions of the Facilities, and reasonably in advance of said date, the Contractor shall assemble at the Facilities its entire operating

force for the said portion, ready to begin operation upon receipt by the Contractor of the notice prescribed in Paragraph 3 (e) of this Article II.

(c) When each portion of the Facilities described in Paragraphs 1 (a), 1 (b), 1 (c), and 1 (d) of Article I hereof is ready for commencement of operation, the Contracting Officer shall so notify the Contractor in writing and the Contractor shall thereupon assume management control and shall operate said portion of the Facilities during the term of this contract.

(d) Upon receipt of the notice prescribed in Paragraph 3 (e) of this Article II, the Contractor shall, in cooperation with one or more representatives of the Contracting Officer, conduct necessary trial runs and tests of the Facilities. Any defects revealed thereby shall be corrected by the Government, or by the Contractor at the expense of the Government if the Contracting Officer so directs.

(e) The Contractor shall furnish from its own staff or shall select, hire, and train competent personnel necessary to operate the Facilities. Such personnel shall be the employees of the Contractor, and the Contractor shall pay the wages of such employees, and in accordance with its established practices with respect to employees relations generally, shall provide in behalf of such employees, in accordance with the terms of the contracts of employment specified in this subparagraph (e), its usual system of vacations, sickness and disability benefits, pensions, annuities, insurance and other similar allowances, usually designated as "employee benefits." The Contractor, or any wholly-owned subsidiary of the Contractor performing work as a subcontractor under Paragraph 4 (b) of Article VIII hereof, shall enter into individual contracts of employment with employees engaged in operation of the Facilities. The said Employment Contract as approved by the Contracting Officer is hereby made a part hereof and is attached as Exhibit "A."

(f) The Contractor shall provide necessary medical, hospital, and recreational facilities for employees engaged in operation of the Facilities, unless said Facilities are provided by the Government for the use of said employees; and, likewise, shall provide educational equipment and services at the site of the Facilities for the minor children of such employees; and shall pay necessary living, traveling, and transportation expenses for said employees and their families as prescribed in the approved employment contract, Exhibit "A" hereof.

(g) The Contractor shall keep the Facilities in a good state of repair, ordinary wear and tear and damage or destruction resulting from causes beyond the Contractor's control excepted. If extensive repairs or replacements beyond the capacity of the Contractor's normal maintenance forces are required, the Contractor may, subject to the approval of the Contracting Officer, employ the services of a competent contractor to perform such work.

(h) The Contractor shall purchase and cause to be delivered to the Facilities all materials, fuel, food, supplies, tools and equipment necessary for the operation of the Facilities. The Government shall assist the Contractor in securing priorities and/or allocation orders necessary for the purchase and delivery of the said material, fuel, food, supplies, tools, and equipment. In the event, however, that the Contractor shall, in spite of diligent efforts, be unable to furnish or arrange adequate transportation for said material, fuel, food, supplies, tools, and equipment to the site of the Facilities as required for satisfactory operation, such transportation shall be furnished by the Government.

(i) The Contractor shall provide as required to promote efficient operation of the Facilities the services of its executive, technical, laboratory, and other staff forces, normally located at the Contractor's home office or regularly established branch offices, or those of its subsidiaries, and the services of its laboratory facilities, and shall provide the services of its purchasing and accounting personnel as needed to assist the Contractor's job-site office.

(j) When, in the judgment of the Contractor, the complexity and nature or problems of operation of the Facilities are such as to require expert technical assistance, or services or advice in connection with special phases of the work, such as physical and chemical analyses, corrosion studies, or other problems of a highly technical character, the Contractor may employ, by contract or otherwise, with the written consent of the Contracting Officer, obtained in advance, such supplemental professional services as are necessary for the proper performance of this contract. Traveling expenses will be allowed in accordance with standard Government Travel Regulations.

(k) The Contractor shall maintain proper records and accounts in accordance with the provisions of Article VII hereof.

(l) The Government shall obtain from Dominion, Territorial, Provincial, and local authorities permits and approvals necessary for the operation of the

Facilities. The Contractor shall endeavor to secure such of these permits and approvals as the Contracting Officer, upon written notice, may request the Contractor to obtain.

(m) The Contractor shall, as soon as practicable after the end of each calendar month, render to the Government a report of operations during such month, including therein information concerning pipe-line receipts, deliveries, product losses, and inventories of petroleum products, together with such other information as the Contracting Officer may require; and shall make such other reports with respect to the work done under this contract as the Contracting Officer may require.

4. In the event that the operation of the Facilities involves the use of patented inventions owned by third persons it is understood and agreed that the Contractor will endeavor to secure licenses under all such patents, either royalty-free or, with such assistance on the part of the Government as may be required, upon the best terms possible; and the Contractor will be reimbursed by the Government for expenditures connected therewith.

5. The Contractor hereby grants to the Government a perpetual royalty-free license to practice in the Facilities but not elsewhere, and then only for purposes of National Defense, all patented inventions, secret processes, and technical information of the Contractor which may be incorporated by the Government in the construction of the Facilities or by the Contractor in the operation of the Facilities. This license shall not be assignable to any transferee of the Facilities or any part thereof, and the Contractor reserves the privilege of asserting any and all legal rights in and to such patented inventions, secret processes, and technical information against any person firm, or corporation; provided, however, that the provisions of this Article shall not supersede or modify any existing agreements between the Contractor and the Government applying to any such inventions, processes, or information.

6. The Government shall furnish and shall own all petroleum products to be transported in the Facilities. The Contractor shall receive such products at Skagway, or at such other locations at the site of the Facilities as the Contracting Officer may designate, and shall receive said products from tank vessels or other facilities as promptly as practicable.

7. Title to all materials, tools, machinery, equipment and supplies procured in the United States for which the Contractor shall be entitled to reimbursement under Article IV shall vest in the Government at the point or points of procurement in the United States, and the Contracting Officer shall inspect and accept such items at such point. Title to all materials, tools, machinery, equipment and supplies procured in the Dominion of Canada for which the Contractor shall be entitled to reimbursement under Article IV shall vest in the Government at such point or points as the Contracting Officer may designate in writing, provided that the right of final inspection and acceptance or rejection of such materials, tools, machinery, equipment and supplies at such place or places as he may designate in writing is reserved to the Contracting Officer; provided further that, upon such final inspection, the Contractor shall be given written notice of acceptance or rejection as the case may be. In the event of rejection the Contractor shall be responsible for the removal of the rejected material within a reasonable time.

8. The Government reserves the right to furnish any materials, equipment, tools, or services, including communication services necessary for the operation of the Facilities. The Contractor shall cause all equipment and tools and other non-expendable items to which title is vested in the Government, to be suitably marked with an identifying mark or symbol indicating that such items are the property of the United States. The Contractor shall maintain at all times, in a manner satisfactory to the Contracting Officer, records showing the disposition and/or use of all equipment, tools, and materials purchased for the work, and for which it has been reimbursed by the Government or which have been furnished by the Government. Upon the completion of this contract or upon demand, the Contractor shall return such equipment, tools and unused materials to the place designated by the Contracting Officer. In respect of such return of said equipment, tools, and unused materials, due allowance shall be made for normal loss, breakage, and destruction, and the Contractor shall not be liable to the Government therefor, except as provided in Paragraph 1 (b) of Article VIII hereof.

9. If the Contractor fails to pay for labor, materials, or other charges, the Government reserves the right to pay directly to the persons concerned all sums due from the Contractor for labor, materials, or other charges.

10. (a) The Government reserves the right to pay directly to common carriers, any or all freight or transportation charges on equipment, tools, materials and supplies.

(b) The Government reserves the right to pay direct for all telegrams, telephone communications (including teletype and facsimile when authorized by the Contracting Officer to be installed), cablegrams, radio-grams, and similar messages that may be sent by the Contractor pertaining directly to the contract for work to be done or materials to be furnished thereunder, and the Contractor is hereby designated as an agent of the Government for the purpose of causing to be transmitted any such messages.

ARTICLE III—ESTIMATE OF COST

It is estimated that the cost of operation of the Facilities will be One Hundred Seventy Thousand Five Hundred Dollars (\$170,500.00) per month during the term of this contract, exclusive of the "Fixed-Fee" specified in Article IV hereof, and exclusive of the cost of correction by the Contractor, if required, of defects, as specified in Paragraph 3 (d) of Article II hereof. It is expressly understood that neither the Government nor the Contractor guarantees the correctness of the above estimated cost of One Hundred Seventy Thousand Five Hundred Dollars (\$170,500.00) per month. The said estimated cost is based upon an estimate agreed to by both the Government and the Contractor, a copy of which is on file in the offices of the Chief of Engineers and the Contracting Officer.

ARTICLE IV—COST OF THE WORK

In consideration of its undertaking under this contract the Contractor shall receive reimbursement for expenditures, and a "fixed-fee", as follows:

1. *Reimbursement for Contractor's Expenditures.*—The Contractor shall be reimbursed in the manner hereinafter described for its actual expenditures in the performance of the work included in the following items; and which expenditures have been approved or ratified by the Contracting Officer:

(a) Salaries and wages paid to personnel directly engaged in the operation of the Facilities. In case the full time of any employee of the Contractor is not applied to the work his salary shall be included in this item only in proportion to the actual time applied thereto. No person shall be assigned to service by the Contractor as Superintendent of operations, Chief Engineer, Chief Purchasing Agent, Chief Accountant and/or similar position in the Contractor's organization until there has been submitted to and approved by the Contracting Officer a statement of the qualifications, experience and salary of the person proposed for such assignment. The payment of any excess salary over such scheduled amounts shown in the approved salary schedule agreed to at the time of negotiation of this contract shall not be reimbursable unless and until the Contracting Officer has so approved in writing.

(b) Losses and expenses, not compensated by insurance or otherwise (including settlements made with the written consent of the Contracting Officer), actually sustained by the Contractor in connection with the work and found and certified by the Contracting Officer to be just and reasonable, unless reimbursement therefor is expressly prohibited by the terms of this contract.

(c) The cost of the Contractor of "employee benefits" and living, traveling, transportation, and other expenses incurred pursuant to the approved Employment Contract, Exhibit "A" hereof.

(d) Salaries or wages paid by the Contractor to its executive, technical, purchasing, accounting, laboratory, and other staff personnel while performing work hereunder pursuant to Paragraph 3 (i) of Article II hereof, and the cost of laboratory supplies and office supplies used in the performance of such work.

(e) Amounts paid by the Contractor for material, tools, machinery, equipment, facilities, supplies, services, fuel, water, light, heat, power and any other service or utility furnished to or with respect to the Facilities, together with any applicable taxes, duties, royalties, transportation charges or other costs necessarily incidental thereto, subject to approval of Contracting Officer.

(f) Amounts paid by the Contractor to contractors employed by it pursuant to the provisions of this contract and for consultant and/or professional services obtained pursuant to Paragraph 3 (j) of Article II hereof. Subcontractors, as defined in Paragraph 4 (a) of Article VIII hereof, will be reimbursed by the Government direct, and not by the prime contractor, when work performed by the subcontractor is certified by the prime contractor.

(g) Cost to the Contractor for operating and maintaining offices, commissary, medical, hospital, recreational and educational facilities as provided in Article II hereof, including minor expenses such as expressage and postage.

(h) Premiums on such bonds and insurance policies as the Contracting Officer may require for the protection of the Government; and the cost of all public liability, employer's liability, workmen's compensation, property damage, fidelity, fire, theft, burglary, and other insurance that the Contracting Officer may approve as reasonably necessary for the protection of the Contractor.

(i) The cost of repairing, reconstructing, and replacing any of the Facilities destroyed or damaged, and not covered by insurance, but expenditures under this item must have the written authorization of the Contracting Officer in advance; and the cost to the Contractor of correction of defects in the Facilities, as provided in Paragraph 3 (d) of Article II hereof.

(j) Payments from his own funds made by the Contractor under the Social Security Act, and any disbursements required by domestic or foreign law, which the Contractor may be required on account of this contract to pay on or for any plant, equipment, process, organization, materials, supplies, or personnel, and, if approved in writing by the Contracting Officer in advance, permit and license fees and royalties on patents used. In the event the Contractor, or a wholly owned subsidiary performing work as a subcontractor hereunder, is required to pay any income, profits or license tax under the laws of the Dominion of Canada or its political subdivisions on account of work under this Contract, the amount of such tax shall be a reimbursable item hereunder.

In the event that the Contractor's employees who are United States citizens are required to pay income tax under the laws of the Dominion of Canada or its political subdivisions, Contractor shall reimburse such employees for a portion of said taxes pursuant to the terms of the Employment Contract, Exhibit "A" hereof, and the cost to the Contractor of such reimbursement shall be a reimbursable item under this contract.

(k) Payments from its own funds made by the Contractor for any applicable taxes, fees, or charges which the Contractor may be required on account of this contract to pay on or for any plant, equipment, process, organization, materials, supplies, or personnel; and permit and license fees, and royalties on patents used, subject, however, to the provisions of Paragraphs 4 and 5 of Article II hereof; provided that all such charges shall be submitted to the Contracting Officer for approval.

(l) Costs incurred by the Contractor incident to termination of this contract including, but without being restricted to, costs necessary for placing the Facilities in condition satisfactory to the Contracting Officer after cessation of operations, cost resulting from commitments made for materials and supplies on order prior to receipt by the Contractor of notification of termination, and necessary costs incident to release of the Contractor's employees and their return to home stations, all subject to the provisions of Article IX hereof.

(m) Such other items not expressly excluded by other provisions of this contract as should, in the opinion of the Contracting Officer, be included in the cost of the work. When such an item is allowed by the Contracting Officer, it shall be specifically certified as being allowed under this subsection.

(n) If employees or representatives of the Contractor be required to travel, the Government will reimburse the Contractor for the transportation, including Pullman or special services where necessary, and will allow for such travel Six Dollars (\$6.00) per day in lieu of all other expenses within the continental limits of the United States, and Seven Dollars (\$7.00) in Alaska and Canada. Transportation by automobile on such required travel shall be reimbursed at the rate of Five Cents (\$.05) per mile as representing the actual cost of such transportation.

All travel shall be either authorized or approved in writing by the Contracting Officer. Should the Contractor, or any representative thereof, remain in a travel status in excess of six (6) days at any one time, not including the time consumed in travel, the cost for such excess travel status shall be at the expense of the Contractor, unless otherwise ordered in writing by the Contracting Officer.

(o) No salaries of the Contractor's executive officers, no fees of its attorneys, no part of the expense incurred in conducting the Contractor's main office or regularly established branch offices, and no overhead expenses of any kind shall be included in the cost of the work except that direct expenses of officers or employees of the Contractor and of its subsidiaries, and of additional operators retained or employed by the Contractor in connection with the operation of the Facilities may be so included to the extent approved by the Contracting Officer.

(p) No interest on capital employed by the Contractor or on borrowed money shall be included in the cost of the work.

(q) The Contractor shall, to the extent of its ability, take all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and honorifications, and when unable to take advantage of such benefits it shall promptly notify the Contracting Officer to that effect and the reason therefor. In determining the actual net cost of articles and materials of every kind required for the purpose of this contract, there shall be deducted from the gross cost thereof all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and benefits which have accrued to the benefit of the Contractor or would have so accrued except for the fault or neglect of the Contractor. Such benefits lost through no fault or neglect on the part of the Contractor, or lost through fault of the Government, shall not be deducted from gross costs.

(r) All revenues received by the Contractor from operation of the Facilities or from rebates, discounts, refunds, etc., shall be accounted for by the Contractor and applied in reduction of the cost of operation of the Facilities. In the event, however, that the Contractor should purchase any products from the Government pursuant to Article XXII hereof, any profit or loss accruing to the Contractor as a result of such purchase shall not be included in the accounts relating to operation of the Facilities.

2. *Fixed-fee.*—The Contractor shall be paid in the manner hereinafter described a fixed-fee, as follows:

(a) A fixed-fee during the period beginning with the date of receipt by the Contractor of the first notice from the Government required under Paragraph 3 (a) of Article II hereof, and ending with the date of termination of this contract, and during successive similar periods beginning with the dates of receipt of the other notices therein specified, in accordance with the following schedule:

For the said period with respect to:

(A) the portion of the Facilities designated as "Canol No. 2," Three Thousand Seven Hundred Dollars (\$3,700.00) per month;

(B) the portion of the Facilities designated as "Canol No. 3," One Thousand Dollars (\$1,000.00) per month;

(C) the portion of the Facilities designated as "Canol No. 4," Three Thousand Six Hundred Dollars (\$3,600.00) per month;

(D) the portion of the Facilities designated as "Canol No. 5," Seven Hundred Dollars (\$700.00) per month.

During the period beginning with receipt by the Contractor of the last of the four said notices and ending with the date of termination of this contract, the above-mentioned partial fees shall no longer be paid, and the fixed-fee shall be Nine Thousand Dollars (\$9,000.00) per month.

(b) In the event that any of the notices prescribed in Paragraph 3 (a) of Article II hereof shall not have been given with respect to any said portion of the Facilities, but operation by the Contractor of such portion shall nevertheless have been commenced, the aforesaid period in such case shall begin with the date thirty days prior to actual commencement of operation of all or any part of such portion. For the purposes of this Paragraph, however, October 1, 1942, is hereby agreed as the beginning of the aforesaid period with respect to the portion of the Facilities designated as Canol No. 2.

(c) The said fixed-fee shall constitute complete compensation for the Contractor's services including overhead expenses, except as otherwise specifically provided in Paragraph 1 (o) of this Article IV.

ARTICLE V—CHANGES IN SCOPE OF PROJECT

The Contracting Officer may, without notice to the sureties, if any, at any time, by a written order, issue additional instructions, require additional work or services, or direct omission of work or services covered by this contract. If such changes cause a material increase or decrease in the amount or character of the work to be done under this contract, an equitable adjustment in the Contractor's fixed-fee will be made as may be agreed upon between the Contractor and the Contracting Officer at the time of such change, and the contract shall be modified in writing accordingly.

ARTICLE VI—PAYMENTS

1. After the assumption of management control by the Contractor as specified in Paragraph 3 (c) of Article II hereof, the Government shall, upon written request of the Contractor to the Contracting Officer, advance to the Contractor a sum which shall be mutually agreed upon but not to exceed 30% of the estimated annual cost of operation, exclusive of the fixed fee, based upon the estimated monthly cost of operation given in Article III hereof, as a "revolving fund" in amount consistent with the magnitude of the operating cost hereunder, which sum shall be used by the Contractor exclusively for the payment of the cost of operating the Facilities in accordance with this contract. If said advance is made by the Government to the Contractor it shall be handled and accounted for by the Contractor in accordance with such terms and conditions as the Government may prescribe at the time of making said advance.

2. The Government will currently reimburse the Contractor for expenditures made in accordance with Article IV hereof upon certification to and verification by the Contracting Officer of the original signed pay rolls for labor, the receipted vouchers for materials, and such other documents as the Contracting Officer may require. Generally, reimbursement will be made monthly but may be made at more frequent intervals if the conditions so warrant.

3. As soon as practicable after the last day of each calendar month in the period during which the Contractor's fixed fee is payable under the provisions of Paragraph 2 of Article IV hereof, the Contractor shall render to the Contracting Officer a statement of the amount of the fixed fee accrued during such month. Upon the Contracting Officer's verification of the said statement, the said verification to be made promptly, the Government shall pay promptly to the Contractor ninety percent (90%) of said amount. The remaining ten percent (10%) accrued and unpaid in each calendar year during the term of this contract shall be paid by the Government to the Contractor promptly after receipt and verification by the Contracting Officer of the Contractor's statement thereof to be rendered as soon as practicable after the close of each such year.

4. Within ninety days after completion of all work done by the Contractor pursuant to termination of this contract the Contractor shall render to the Contracting Officer a final statement of expenditures made in accordance with Article IV hereof since the last preceding monthly statement, the said expenditures to be duly certified and supported by the aforesaid pay rolls, vouchers, and other documents. The said final statement shall also include the total amount of the fixed fee prescribed in Paragraph 2 of Article IV hereof, less payments thereof previously made by the Government to the Contractor; and shall also include credit to the Government in the amount of the sum, if any, advanced to the Contractor pursuant to Paragraph 1 of this Article VI. Upon the Contracting Officer's verification of the said final statement, the said verification to be made promptly, and subject to the provisions of Paragraph 4 of Article IX hereof, the balance payable in accordance with said final statement shall be paid promptly by the Government to the Contractor, or by the Contractor to the Government, as the case may be.

5. The statements rendered to the Government by the Contractor as prescribed in this Article VI shall be in terms of United States dollars. Expenditures included in such statements made in Canadian dollars shall be converted to United States dollars at the rate of exchange effective at the time such expenditures were made. The said rate of exchange shall be that established by the Foreign Exchange Control Board of the Dominion of Canada or by such competent authority as may be established from time to time for the purpose of fixing such rate of exchange. All payments by the Government to the Contractor hereunder shall be in United States dollars, and shall be paid to the Contractor at its main office in San Francisco, California, or elsewhere, as the Contractor may direct.

ARTICLE VII—RECORDS AND ACCOUNTS—INSPECTION AND AUDIT

1. The Contractor shall keep records and books of account, showing the actual cost to it of all items of labor, materials, equipment, supplies, services, and other expenditures of whatever nature for which reimbursement is authorized under the provisions of this contract. The system of accounting to be employed by the Contractor shall be such as is satisfactory to the Contracting Officer.

2. The Contracting Officer shall at all times be afforded proper facilities for inspection of the work and shall at all times have access to the premises, work,

and materials, to all books, records, correspondence, instructions, plans, drawings, receipts, vouchers, and memoranda of every description of the Contractor pertaining to said work except such documents as have been submitted in support of reimbursement vouchers; and the Contractor shall preserve such papers without additional compensation therefor, for a period of three (3) years after completion or termination of this contract.

3. Any duly authorized representative of the Contractor shall be accorded the privilege of examining the books, records, and papers of the Contracting Officer relating to the cost of the work for the purpose of checking and verifying such cost.

4. In order to avoid, so far as possible, duplication in accounting and auditing functions performed by the Contractor and the Government, it is agreed that the following accounting and auditing functions shall be performed by the Government exclusively:

(a) Audit of original pay rolls of the Contractor, or such portions thereof as are applicable), where such pay rolls are prepared by the Contractor. (Where pay rolls are prepared by the Government, the audit thereof by the Government will be concurrent with such preparation.)

(b) Such other accounting and auditing functions as may be effectively performed by Government employees, and to which the Contracting Officer and the Contractor may mutually agree in writing.

ARTICLE VIII—SPECIAL REQUIREMENTS

1. While it is the purpose and intent of the Contractor to exercise the same degree of care (unless otherwise directed by the Government) in performing the work provided for in this contract as it would if the Facilities to be operated belong to the Contractor, nevertheless, because of the abnormal conditions existing, it is agreed by and between the parties hereto as follows, to wit:

(a) All work under this contract is to be performed at the expense of the Government, and the Government shall indemnify and hold the Contractor harmless against any loss, expense (including expense of litigation), or damage (including personal injuries and deaths of persons and damage to property) of any kind whatsoever arising out of or connected with the performance of the work, unless such loss, expense or damage shall be shown by the Government to have been caused directly by and through the wilful neglect of, and/or bad faith and wilful misconduct on the part of some officer or officers of the Contractor, acting within the scope of his or their authority and employment.

(b) The Contractor shall not be liable to the Government in any amount whatever for failure or delay in the performance by it hereunder, or for any damage to or destruction of the Facilities or other property of the Government in the possession or control of the Contractor in connection with this contract, or for any injury to or death of persons or damage to property arising out of or in connection with the work hereunder, no matter what the cause thereof may be or may seem to be, unless same shall be shown by the Government to have been caused directly by and through the wilful neglect of, and/or bad faith or wilful misconduct on the part of some officer, or officers of the Contractor acting within the scope of his or their authority and employment.

2. The Contractor shall procure, if obtainable, and thereafter maintain such bonds and insurance in such forms and in such amounts, and for such periods of time as the Contracting Officer may approve or require.

3. The Contractor shall reduce to writing, unless this provision is waived in writing by the Contracting Officer, every contract in excess of Five Thousand Dollars (\$5,000.00) made by it for the purpose of the work hereunder for services, materials, supplies, equipment, or for the use thereof; insert therein a provision that such contract is assignable to the Government; make all such contracts in its own name, and not bind or purport to bind the Government or the Contracting Officer thereunder. No purchase in excess of Five Thousand Dollars (\$5,000.00) shall be made or placed without the prior approval of the Contracting Officer.

4. (a) Except as provided in subsection (b) of this Paragraph 4, the Contractor shall enter into no subcontract for any portion of the work, except in the form prescribed by the Chief of Engineers, nor without the written approval of the Contracting Officer. Subcontracts are defined as contracts entered into by the Contractor with others which involve the performance, wholly or in part at the site of the Facilities, of some part of the work described in Article II hereof: provided, however, that a contract for the furnishing of standard or

commercial articles or raw materials shall not be considered as a subcontract.

(b) Notwithstanding the generality of the foregoing, the Contractor is hereby authorized to enter into one or more subcontracts for the performance of any part or all of the work under this contract with its wholly-owned subsidiary, Standard Oil Company, a corporation organized and existing under the laws of the Territory of Alaska, or with any other wholly-owned subsidiary of the Contractor. In the event that the Contractor enters into such subcontract, it is hereby agreed that the amount of the fixed-fee to be paid to the Contractor by the Government as specified in Paragraph 2 or Article IV hereof shall not be changed because of such subcontract.

5. At all times during the period of the Contractor's operation of the Facilities during the term of this contract, the Contractor shall keep at the Facilities a duly appointed and qualified representative who shall receive and execute on the part of the Contractor such notices, directives, and instructions as the Contracting Officer may give.

6. In the performance of work hereunder the Contractor shall comply with, and give all stipulations and representations required by applicable federal laws and shall require such compliance, representations and stipulations with respect to any contract entered into by it with others hereunder as may be required by applicable federal laws.

7. In the performance of work hereunder, the Contractor shall comply with all applicable laws of the Dominion of Canada, the Province of British Columbia and Yukon Territory, and municipal and local laws and the rules, orders, regulations and requirements of any departments and bureaus thereof and all applicable local ordinances and regulations. ~~The Government, however, shall compensate the Contractor, in the manner provided in Article VI hereof, for any liability or penalty which may be imposed by Dominion, Provincial, Territorial or local authority or any department or bureau thereof by reason of any asserted violation by the Contractor of such laws, rules, orders, requirements, ordinances or regulations, unless such liability or penalty shall be shown by the Government to have been caused directly by or through fault and neglect of, and/or bad faith or wilful misconduct on the part of some officer or officers of the Contractor acting within the scope of his or their authority and employment.~~

8. When the performance of work hereunder requires United States citizens who are employees of the Contractor, or of subcontractors, to obtain admission to Canada, or requires any such employees who are Canadian citizens to obtain admission to the United States, the Government shall, upon request of the Contractor, endeavor to arrange for such admissions.

9. Should the continued employment, under this contract, of any person in the Contractor's organization be deemed by the Contracting Officer to be prejudicial to the interests of the Government, that person shall be immediately removed from the work. The Contractor shall make every reasonable effort in the selection of its employees and in the prosecution of the work under this contract to safeguard drawings, specifications, and reports and to prevent the theft or unauthorized use of the same.

10. The Contractor shall at all times use its best efforts in all acts hereunder to protect and subserve the interest of the Government.

ARTICLE IX—TERM OF CONTRACT

1. This contract unless sooner terminated as hereinafter provided or unless extended by mutual agreement of the Government and the Contractor shall remain in effect for a term which begins on the date hereof and extends six months beyond the termination of the present war emergency as determined by proclamation of the President of the United States, but in no event shall the said term extend beyond October 1, 1961.

2. Should the Contractor at any time refuse, neglect, or fail to prosecute the work with promptness and diligence, or default in the performance of any of the agreements herein contained, or should conditions arise which make it advisable or necessary in the interest of the Government to cease operation of the Facilities, the Government may terminate this contract by a notice in writing from the Contracting Officer to the Contractor, such termination shall be effective in the manner and upon the date specified in said notice, and shall be without prejudice to any claim which the Government may have against the Contractor. Upon receipt of such notice the Contractor shall, unless the notice directs otherwise, immediately discontinue all work and the placing of all orders for materials, facilities, and supplies in connection with

the performance of this contract and shall proceed to cancel promptly all existing orders and terminate work under all subcontracts insofar as such orders and/or work are chargeable to this contract.

3. If this contract is terminated for the fault of the Contractor, the Contracting Officer may enter upon the premises and take possession, for the purpose of completing the work contemplated by this contract, of all materials, tools, equipment, and appliances and all options, privileges, and rights, and may complete or employ any other person or persons to complete said work. Delay or failure to perform shall not be considered the fault of the Contractor when the Contractor's performance has been prevented or hindered by acts of God or of the public enemy, acts of the Government (including but not restricted to any preference, priority, or allocation order), fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unavailability of labor, materials or transportation facilities, unusually severe weather, or failure or delay of a subcontractor due to such causes.

4. Upon the termination of this contract as hereinbefore provided, full and complete settlement of all claims of the Contractor arising out of this contract shall be made as follows:

(a) The Government shall assume and become liable for all obligations, commitments, and claims that the Contractor may have theretofore in good faith undertaken or incurred in connection with said work, the cost of which would be reimbursable in accordance with the provisions of this contract; and the Contractor shall, as a condition of receiving the payments mentioned in this Article, execute and deliver all such papers and take all such steps as the Contracting Officer may require for the purpose of fully vesting in the Government the rights and benefits of the Contractor under such obligations or commitments.

(b) The Government shall reimburse the Contractor for all expenditures made in accordance with Article IV hereof and not previously reimbursed.

(c) The Government shall reimburse the Contractor for such further expenditures after the date of termination for the protection of Government property, and for the Contractor's accounting services in connection with the settlement of this contract as are required or approved by the Contracting Officer.

(d) The obligation of the Government to make any of the payments required by this Article shall be subject to any unsettled claims in connection with this contract which the Government may have against the Contractor.

5. Prior to final settlement, the Contractor shall furnish a release as required in Paragraph 4 (a) of Article IX hereof.

ARTICLE X—CONTRACTING OFFICER'S DECISIONS AND DISPUTES

The extent and character of the work to be done by the Contractor shall be subject to the general supervision, direction, control, and approval of the Contracting Officer to whom the Contractor shall report and be responsible. All disputes arising under this contract shall be decided by the Contracting Officer, whose decision shall be in writing, subject to written appeal by the Contractor within 30 days to the Chief of Branch concerned or his duly authorized representative, whose decision shall be final and conclusive upon the parties hereto, when the amount involved is \$15,000 or less. When the amount involved is more than \$15,000, the decision of the Chief of Branch shall be subject to written appeal within 30 days by the Contractor to the Secretary of War or his duly authorized representative, whose decision shall be final and conclusive upon the parties hereto. In the meantime the Contractor shall diligently proceed with the work as directed.

ARTICLE XI—CONVICT LABOR

The Contractor shall not employ, except with the approval of the Contracting Officer, any person undergoing sentence of imprisonment at hard labor.

ARTICLE XII—LABOR

1. Payments to its employees by the Contractor shall be in accordance with existing regulations. The Contractor will pay directly upon the site of the work, not less often than twice a month unless otherwise authorized by the Contracting Officer, the full amounts accrued at the time of payment, less any tax deductions required by law computed at wage rates not less than those approved by the Contracting Officer for the work herein specified.

2. Anti-Discrimination: (a) The Contractor in performing the work required by this contract shall not discriminate against any worker because of race, creed, color, or national origin.

(b) The Contractor agrees that the provision of subsection (a) above will also be inserted in all of its subcontracts. For the purpose of this article, a subcontract is defined as any contract entered into by the Contractor with any individual, partnership, association, corporation, estate, or trust, or other business enterprise or other legal entity, for a specific part of the work to be performed in connection with the supplies or services furnished under this contract; provided, however, that a contract for the furnishing of standard or commercial articles or raw material shall not be considered as a subcontract.

ARTICLE XIII—WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

During the life of this contract, the Contractor will provide and maintain, for all employees of the Contractor engaged in work under this contract, Workmen's Compensation and Employer's Liability Insurance, or such other protection for employees as may be required by Federal or State statutes of the United States of America, or by the laws of the Dominion of Canada or political subdivisions thereof in the jurisdiction in which such work is performed under direction of the Contracting Officer.

1. During the life of this contract, Workmen's Compensation and Public Liability Insurance covering the operation and maintenance of the facilities of this contract, as described in Article I hereof, shall be in accordance with all applicable State, provincial, and Dominion Workmen's Compensation Laws, the Act (U. S.) entitled "Longshoremen's and Harbor Workers' Compensation Act" (44 Stat. 1424), as amended, and as the same was amended by Public Law 208, 77th Congress, approved August 16, 1941, and the War Department Insurance Rating Plan.

2. All losses and expenses, not compensated by the above-described laws and plan or by other forms of insurance which have been approved by the Contracting Officer, shall be reimbursed to the Contractor in accordance with Paragraph 1, subparagraph (b), Article IV hereof.

ARTICLE XIV—ACCIDENT PREVENTION

In order to protect the life and health of its employees in the performance of this contract, the Contractor will comply with all pertinent provisions of the "Safety Requirements in Excavation—Building—Construction" approved by Chief of Engineers December 16, 1941 (a copy of which is on file in the Office of the Contracting Officer), and as may be amended, and will take or cause to be taken such additional measures as the Contracting Officer may determine to be reasonably necessary for this purpose. The Contractor will maintain an accurate record of, and will report to the Contracting Officer in the manner and on the forms prescribed by the Contracting Officer, all cases of death, occupational disease, and traumatic injury arising out of or in the course of employment on work under this contract.

ARTICLE XV—OFFICIALS NOT TO BENEFIT

No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE XVI—COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that it has not employed any person to solicit or secure this contract upon any agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give the Government the right to terminate the contract, or in its discretion, to deduct from payments due the Contractor the amount of such commission, percentage, brokerage, or contingent fee. This warranty shall not apply to commissions payable by the Contractor upon contracts or sales secured or made through bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

ARTICLE XVII—CONTRACTOR'S ORGANIZATION AND METHODS

Upon the execution of this contract, the Contractor shall submit to the Contracting Officer a chart showing in general the executive and administrative organization, duties and personnel to be employed in connection with the work under the contract; the data so furnished shall be supplemented as additional information becomes available.

ARTICLE XVIII—ASSIGNMENT OF CLAIMS

Neither this contract, nor any interest therein, or claim thereunder, shall be assigned or transferred by the Contractor to any party or parties.

ARTICLE XIX—NOTICES

1. Any notice required to be given to the Government under the provisions of this contract shall be addressed to the Division Engineer, Northwest Divisions, United States Engineer Office, Edmonton, Alberta, Canada.

2. Any notice required to be given to the Contractor under the provisions of this contract shall be addressed to Standard Oil Company of California, 225 Bush Street, San Francisco, California.

ARTICLE XX—PURCHASE OF PRODUCTS

The Contractor shall have the right to purchase from the Government any petroleum products handled in the Facilities in excess of the Government's requirements for such products. The price to be paid by the Contractor shall be agreed upon at the time of such purchase. The Government shall at no time during the term of this contract sell any such excess products unless it shall first have given to the Contractor the opportunity to buy these products at a price equal to the best offer received by the Government and the Contractor shall have failed or refused to purchase the same within ten days after notification to the Contractor of such offer.

ARTICLE XXI—PURCHASE OF FACILITIES

Upon the expiration or termination of this contract (unless such termination shall have been effected for the fault of the Contractor), the Contractor shall have, and is hereby granted for a period of ninety days after such expiration or termination (hereinafter referred to as the "option period") the right and option by written notice to the Government to purchase all, or any portion, of the Facilities at a price negotiated with the Government and upon the establishment by the Contractor and the Government of mutually satisfactory terms and conditions, the Government will sell the same to the Contractor. The Government further agrees, to the extent that it lawfully may, that it will not sell the Facilities or any part thereof to any party or parties for a period of one year following the expiration of the full option period, unless it shall first have offered the same for sale to the Contractor at a price equal to the best offer received by the Government, and the Contractor shall have failed or refused to purchase the same within thirty days after the receipt of such offer.

ARTICLE XXII—ASSIGNMENT OF PURCHASE RIGHTS

Upon written notice by the Contractor to the Contracting Officer, the Contractor may assign any part or all of the rights, privileges, and options to which the Contractor is entitled under the provisions of Articles XX and XXI hereof to Standard Oil Company, an Alaska corporation, or to any other wholly-owned subsidiary of the Contractor.

ARTICLE XXIII—APPROVAL REQUIRED

This contract shall be subject to the approval of the Chief of Engineers or any person designated by him.

ARTICLE XXIV—RENEGOTIATION PURSUANT TO SECTION 403 OF THE SIXTH SUPPLEMENTAL NATIONAL DEFENSE APPROPRIATION ACT, 1942

(a) Upon the written demand of the Secretary, at such period or periods when, in the judgment of the Secretary, the profits accruing to the Contractor under this contract can be determined with reasonable certainty, the fixed-fee specified in Article IV will be renegotiated to eliminate therefrom any amount found as a result of such renegotiation to represent excessive profits. The demand of the Secretary shall fix a place for renegotiation and a time for commencement thereof not later than one year after the date of completion or termination of the contract as found by the Secretary.

(b) The Contractor will furnish to the Secretary such statements of actual costs of production and such other financial statements, at such times and in such form and detail, as the Secretary may prescribe, and will permit such audits and inspections of its books and records as the Secretary may request.

(c) The Government shall retain or the Contractor shall repay to the Government, as the Secretary may direct, any amount of the fixed-fee specified in Article IV found as a result of such renegotiation to represent excessive profits.

(d) The Contractor will include in each fixed-price or lump-sum subcontract made under this contract for an amount in excess of \$100,000, the following provisions:

ARTICLE —. *Renegotiation Pursuant to Section 403 of the Sixth Supplemental National Defense Appropriation Act, 1942.*—(1) Upon the written demand of the Secretary, at such period or periods when, in the judgment of the Secretary, the profits accruing to the Subcontractor under this contract can be determined with reasonable certainty, the Secretary and the Subcontractor, will renegotiate the contract price to eliminate therefrom any amount found as a result of such renegotiation to represent excessive profits. The demand of the Secretary shall fix a place for renegotiation and a time for the commencement thereof not later than one year after the date of completion or termination of this contract as found by the Secretary.

(2) The Subcontractor will furnish to the Secretary such statements of actual costs of production and such other financial statements, at such time and in such form and detail, as the Secretary may prescribe, and will permit such audits and inspections of its books and records as the Secretary may request.

(3) Any amount of the contract price found as a result of such renegotiation to represent excessive profits shall be directed by the Secretary—

(A) Be deducted by the Contractor from payments otherwise due to the Subcontractor under this contract; or

(B) Be paid by the Subcontractor directly to the Government.

(4) The Subcontractor agrees that the Contractor shall not be liable to the Subcontractor for or on account of any amount paid to the Government by the Subcontractor or deducted by the Contractor from payments otherwise due under this contract, pursuant to directions from the Secretary in accordance with the provisions of this Article. Under its contract with the Government, the Contractor is obligated to pay or credit to the Government all amounts withheld by it from the Subcontractor hereunder.

(5) As used in this Article—

(a) The term "Secretary" means the Secretary of War or any duly authorized representative of the Secretary, including the Contracting Officer.

(b) The terms "renegotiate" and "renegotiation" have the same meaning as in section 403 (b) of the Sixth Supplemental National Defense Appropriation Act, 1942.

(c) The term "this contract" means this contract as modified from time to time.

(e) In any such subcontract by which the Subcontractor undertakes to supply to the Contractor the same article or articles which the Contractor is required to deliver to the Government under this contract, the Contractor will also include, in addition to sections (1) to (5) required by section (a), the following provisions:

(6) The Subcontractor agrees (a) to include in each fixed-price or lump-sum subcontract hereunder for an amount in excess of \$100,000 the fore-

¹ This Article will be appropriately numbered in the fixed-price or lump-sum subcontract.

going sections (1) to (5) inclusive, and (b) to make no subdivisions of any contract or subcontract for the purpose of evading the provisions of this section, and (c) to repay to the Government the amount of any reduction in the contract price of any such contract which results from renegotiation thereof by the Secretary and which the Secretary directs the Subcontractor to withhold from payments otherwise due under such contract and actually unpaid at the time the Subcontractor receives such direction.

(f) (1) The Contractor agrees to make no subdivision of any contract or subcontract for the purpose of evading the provisions of this Article.

(2) If any renegotiation between the Secretary and any Subcontractor pursuant to the provisions required by section (a) hereof results in a reduction of the contract price of the subcontract, the Government shall retain from payments otherwise due to the contractor under this contract, or the Contractor shall repay to the Government, as the Secretary may direct, the amount of such reduction which the Secretary directs the Contractor to withhold from payments otherwise due to the Subcontractor under the subcontract and actually unpaid at the time the Contractor receives such direction.

(g) As used in this Article—

(1) The term "Secretary" means the Secretary of War or any duly authorized representative of the Secretary, including the Contracting Officer.

(2) The term "subcontract" includes any purchase order from, or any agreement with, the Contractor (i) to perform all or any part of the work to be done under this contract, or to make or furnish all or any part of any articles or structures covered by this contract, (ii) to supply any services required directly for the production of any articles or structures covered by this contract, or any component part thereof, not including services for the general operation of the contractor's plant or business, (iii) to make or furnish any articles destined to become a component part of any article covered by this contract, or (iv) to make or furnish any articles acquired by the Contractor primarily for the performance of this contract, or this contract, and any other contract with the United States. The term "articles" includes any supplies, materials, machinery, equipment or other personal property.

(3) The terms "renegotiate" and "renegotiation" have the same meaning as in section 403 of the Sixth Supplemental National Defense Appropriation Act, 1942.

(4) The term "this contract" means this contract as modified from time to time.

ARTICLE XXV—ALTERATIONS

The following changes were made in this contract before it was signed by the parties hereto: NONE.

In witness whereof, the parties hereto have executed this contract as of the day and year first above written.

By THE UNITED STATES OF AMERICA,

THEODORE WYMAN, Jr.,

Colonel, Corps of Engineers, Contracting Officer.

Contractor:

STANDARD OIL COMPANY OF CALIFORNIA,

By J. L. HANNA,

Vice President.

By G. M. FOSTER,

Assistant Secretary.

Witnesses as to signature of Contractor:

H. L. SEVERANCE,

225 Bush Street, San Francisco, Cal.

J. M. OWENS,

225 Bush Street, San Francisco, Cal.

[SEAL]

CERTIFICATION

I, A. K. STEVENSON, do hereby certify that I am the duly qualified Assistant Secretary of the corporation named herein as Contractor; that J. L. HANNA and G. M. FOSTER who signed this contract on behalf of the Contractor, were then and are now the Vice President and the Assistant Secretary respectively, of said corporation; that said contract was duly signed for and on behalf of said

corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the STANDARD OIL COMPANY OF CALIFORNIA this 29th day of March, A. D. 1943.

A. K. STEVENSON,
Assistant Secretary.

[SEAL]

This contract is authorized by the following laws: Act approved July 2, 1940 (Public Law No. 703, 76th Congress) as amended by the Act approved June 30, 1941 (Public Law 139, 77th Congress), Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354, 77th Congress), and Executive Order No. 9001, dated December 27, 1941.

STANDARD OIL COMPANY (ALASKA)

Subcontractor Under Contract Nos. W-2385-Eng. 44; and No. W-2385-Eng. 39

EMPLOYMENT CONTRACT No. -----

Check Type of Contract Applicable Below:

- ☐ Monthly Pay Employees—Approved Type "A" Contract.
☐ Hourly Pay Employees—Approved Type "B" Contract.

STANDARD OIL COMPANY (ALASKA), an Alaska corporation, a Subcontractor engaged in the performance of certain operating, maintenance and construction work known as "Canol Project" in the Dominion of Canada and Alaska, under Contracts No. W-2385-Eng. 44; and No. W-2385-Eng. 39 of the War Department of the United States of America, said Subcontractor being hereafter referred to as the "Employer," employs the "Employee" hereinafter named for service on the aforesaid "Canol Project," upon the following terms and conditions, to which the Employer and Employee agree:

1. Name of Employee-----
Social Security No.-----

OCCUPATION

2. The position for which the Employee represents he is qualified, and for which he is engaged, is that of -----
on an operating, maintenance, and construction job in the Dominion of Canada and Alaska. It is understood that although the Employee is engaged for the above mentioned class of work, he may be used, at the option of the Employer, in any other class of work without any reduction in pay. If the Employee is transferred to a class of work bearing a higher rate of compensation than that provided herein, the Employee will be paid the higher rate in accordance with the Employer's regulations.

SALARY OR WAGE

3. The Employee will be paid on a ----- basis at the rate of \$----- per -----
Monthly or Hourly
Month or Hour The Employee, whether paid on an hourly or monthly basis, agrees to work in accordance with the working schedules which are established for the purpose of meeting the requirements of the Contracting Officer insofar as possible, the work being of utmost importance to the War Program. If the Employee is paid on an hourly basis, he will receive one and one-half times the applicable rate for time worked in excess of forty hours per week with a minimum guarantee based on a forty-eight (48) hours per week working schedule. If the Employee is hired for an office position of Senior Clerk or below, as specified in Paragraph 2 hereof, the monthly salary shown above is based on forty (40) hours per week and he will receive overtime at the rate of time and one-half for all time worked in excess of forty (40) hours per week with a minimum guarantee based on a forty-eight (48) hours per week working schedule.

4. Pay shall commence on ----- at ----- and cease on return to ----- except as provided in Paragraphs 13 and 17 hereof.

5. The Employer may at his option pay all earnings or allowances due to Employee in full at the jobsite or in accordance with a separate Allotment and deposit order executed by the Employee. All payments and allowances under this contract are payable in United States currency.

BED, SHELTER, AND BOARD

6. The Employer will furnish bed, shelter, and board free of charge to the Employee or in lieu thereof, the Employer will reimburse the Employee for actual expenses incurred for bed, board, and shelter provided that such reimbursement shall not exceed \$1.00 per day for bed and shelter and \$2.00 per day for board. In case the Employee is stationed at Edmonton, Alberta, Canada, no bed, shelter, or board will be furnished by the Employer while the Employee is engaged in work at Edmonton. Bed, shelter, and board will not be furnished the Employee while he is on vacation or during vacation travel time: Subject to the foregoing an employee will be furnished bed and shelter, even though receiving an allowance under paragraph 22 hereof, while he is working away from his family.

CLOTHING

7. If operating conditions require, the Employer will furnish the following cold-weather equipment and clothing: 1 parka, 1 pair gloves, 1 pair iron pants (canvas), 1 footwear (pack of logger's rubbers), 1 bed roll. These supplies must be accounted for and shall not become the personal property of the Employee. Any other necessary cold-weather equipment or clothing shall be furnished at the Employee's expense.

WORK LOCATION

8. The Employee is originally assigned for work in the ——— Area. However, it is understood that the Employee may be transferred at any time to any Area in the Canol Project at the discretion and expense of the Employer.

PERIOD OF SERVICE

9. The period of service shall be such period as the Employer may, subject to the provisions of this contract, require the services of the Employee, provided that said period of service shall not, without the consent of the Employees, exceed twelve (12) months from the date hereof; such consent shall be assumed if he continues to work for the Employer after the expiration of twelve (12) months from the date hereof. Such period of service may be terminated at any time without notice by the Employer if so directed by the Contracting Officer.

TRANSPORTATION

10. Transportation costs from ——— (point of hire) to ——— will be paid or furnished by the Employer. Transportation costs shall include transportation and reasonable actual expenses, as determined by the Employer. Point of hire, wherever used in this contract, shall refer to the point of hire as shown above

11. The Employee will pay his return transportation costs and expenses if he quits prior to twelve (12) months from the date of this contract or if he is discharged in accordance with Paragraph 13 hereof. If the Employee satisfactorily performs this contract and remains on the job for twelve (12) months, or such lesser time as determined by the Employer, the Employer will pay or furnish to the Employee return transportation costs, as defined in Paragraph 10 hereof, to the point of hire. The Employee shall secure approval of the Employer in advance of such travel.

TRANSPORTATION DEPOSIT

12. The Employee agrees that the Employer may at its option withhold from the compensation of the Employee cost of return transportation and expenses to be paid by the Employee referred to in Paragraph 11 hereof, by withholding not more than one-third ($\frac{1}{3}$) of the Employee's earnings for any pay period until such cost has been accumulated. In the event the Employer accumulates

and withholds such cost, the withheld amount shall be refunded to the Employee, upon completion of twelve (12) months of service hereunder, unless he quits or is discharged as herein provided during such twelve (12) months' period, in which case said amount shall be applied to the return transportation costs and expenses to be paid by the Employee.

TERMINATION OF SERVICE

13. If the Employee fails to serve the Employer faithfully and efficiently in accordance with the instructions of the Employer or his agents, or becomes unfit for service through his own ineptitude or misconduct, the Employer shall have the right to discharge the Employee. It is also understood that the Employee may be discharged if such action is requested by the Contracting Officer. This Contract of Employment and all payments hereunder shall cease and terminate on the date of discharge. If the Employer determines that a discharge is made for the best interests of the job and the Employer does not consider the Employee guilty of misconduct or specific misrepresentation of his occupational ability, the Employer, may at its discretion, pay or furnish to the Employee return transportation costs as defined in Paragraph 10 hereof to the point of hire.

EMPLOYEE BENEFITS AND SPECIAL PROVISIONS

14. Workmen's Compensation Insurance, under Longshoremen's and Harbor Workers' Compensation Act as amended by Public Law 208, will be carried by the Employer.

15. In the event that the employee, during the period of service under this contract, is incapacitated on account of accidental injury suffered in the course of employment or on account of illness occurring at a time other than while the employee is on vacation or during vacation travel time, the employer will, if necessary, supplement the amount of compensation insurance payments, if any, paid to the employee so that such employee will receive earnings as defined in Paragraph 16 hereof for not to exceed thirty (30) days in any twelve (12) months' period; but no such payments shall be made to the employee for any period in which he may refuse to work, when in the opinion of the doctor or nurse approved by the employer, he is physically able to do so or for any period during which he is so incapacitated as the result of his own misconduct. Additional disability benefits may be payable under Paragraph 16 hereof to an employee who meets the necessary requirements of the employer's regulations. During the period of service under this contract the employee will be furnished without charge medical attention and hospitalization in connection with illness in accordance with the United States Engineer Health Service Plan.

16. The Employer shall provide in behalf of the Employee, after one or more years of continuous service as defined in the Employer's regulations, its employment provisions and benefits as set forth in the attached summary dated September 1, 1942, entitled, "Employment with Standard Oil Company (Alaska)." Continuous service shall include all continuous service with the Standard Oil Company of California and any other service recognized as such under the regulations of the Standard Oil Company of California. Any disability benefit paid under Paragraph 15 hereof shall be offset against disability benefits payable under this paragraph. Earnings for benefit purposes shall not include the one-half or premium portion of overtime. As to employees who are eligible for overtime, such earnings shall be based on regular straight-time earnings for a forty-eight (48) hour week.

17. In the event that the employee, as a result of enemy action, is officially reported as missing from his place of employment or captured by the enemy, it is understood that he is entitled to all the compensation rights and benefits prescribed by Public Law Number 784 and Public Law Number 208, 77th Congress, in lieu of the compensation provided herein. The employee requests that payments under this section shall be paid to-----
at-----

18. In the event that the Dominion of Canada requires the Employee to pay any income tax on the earnings of the Employee in Canada, the Employee will receive from the Employer the amount by which such Canadian income taxes exceed the amount of income tax that would have been paid in the United States (Federal only) on such earnings, determined in accordance with definitions and formulas to be hereafter established by the Employer. Such amount shall be in addition to all other compensation paid to the Employee under this contract.

FAMILY PROVISIONS

19. The Employer's broad policy and intent is to permit the Employee, after one or more years of continuous service as defined in the Company's regulations, to have his immediate family with him during his period of service hereunder subject to the availability of housing, the status and location of operations, the nature of the Employee's work and other factors. This policy shall be subject to regulations of the American and Canadian Governments and such regulations as the United States War Department has established or may establish with respect to permitting dependents to enter and reside in the Canol Project areas. It is possible that such areas may be declared "defense areas" in which case dependents would not be allowed to enter. The Employer shall make a determination in each individual case based on the foregoing considerations and in the event the Employee's immediate family is permitted to join the Employee, the Employer will pay transportation costs, as defined in Paragraph 10 hereof, and assist in making arrangements for the transportation of the Employee's wife and children under 18 years of age and the moving of personal effects to the Project from the point of hire.

20. Should the Employee quit or if he is discharged in accordance with Paragraph 13 hereof within the twelve (12) months' period subsequent to the date on which the Employee receives written notice that the Employer has determined that his immediate family will be permitted to join him, the Employee will pay return transportation costs and expenses for his family. The Employee agrees that the Employer may at its option, effective from the date of such written notice, withhold from the compensation of the Employee a sum sufficient to cover return transportation costs and expenses for his family, by withholding not more than one-third ($\frac{1}{3}$) of the Employee's earnings for any pay period until such sum has been accumulated, provided, however, that the total deduction under this paragraph and Paragraph 12 hereof shall in no event be more than one-third ($\frac{1}{3}$) of the Employee's earnings for any pay period. If the Employee quits or is discharged as herein provided during the twelve (12) months' period subsequent to the date of such written notice, the sum accumulated shall be applied to the family's return transportation costs and expenses to be paid by the Employee.

21. When the Employee shall have satisfactorily completed twelve (12) months of service subsequent to date of aforesaid determination, the Employer will return to the Employee the entire sum withheld under Paragraph 20 hereof, and such Employee shall have, subject to prior authorization and approval of the Employer, the right to ask for and receive return transportation costs as defined in Paragraph 10 hereof to the point of hire for his immediate family and personal effects at the Employer's expense.

22. If an Employee's immediate family is permitted to join him under Paragraph 19 hereof, he shall receive from the Employer a subsistence allowance of \$90.00 per month while he is employed hereunder and residing with his family at the Project, provided that no such allowance shall be paid in case the Employee is stationed at Edmonton, Alberta, Canada. The Employer plans to have housing facilities available for use of the Employee and his family and in case the Employee is furnished such facilities he hereby authorizes the Employer to deduct from the aforesaid subsistence allowance a monthly rental charge of \$30.00 per month. An Employee receiving an allowance under this Paragraph shall not be entitled to any board under Paragraph 6 hereof, but such Employee shall be entitled to bed and shelter in accordance with Paragraph 6 hereof, while he is working away from his family.

GENERAL PROVISIONS

23. The Employee shall submit to any required medical examination or inoculation, the cost of which will be paid by the Employer.

24. The Employee hereby certifies that he does not advocate and is not a member of any organization that advocates the overthrow of the Government of the United States by force or violence.

25. The Employee understands that other men from his trade, or other trades or crafts may be employed on the work to be done by the Employer in the Dominion of Canada and Alaska, and that these men may be either Union or Non-Union. The Employee agrees that the employment of such men will not be used as a reason for failure to carry out this contract.

26. It is further agreed that the Employer may, at any time during the term of this contract, assign this contract to any subcontractor who may be engaged on the aforesaid "Canol Project."

27. In the event of accident or emergency, the Employer may notify -----
----- at ----- This address may be considered the
Employee's permanent home address, and the address of the person in whose
care the Employer may communicate with the Employee concerning this contract
or other matters if it is unable to communicate with the Employee personally.

28. This contract embodies the whole agreement between the parties hereto
and there are no inducements, promises, terms, conditions, or obligations made
or entered into by the Employer other than contained herein. No modification
of this agreement may be made except by instrument in writing signed by the
Employer's duly authorized representative.

Dated at ----- in septuplicate, this ----- day of -----
-----, 194-----.

STANDARD OIL COMPANY (ALASKA),
By J. L. HANNA,
(Employer)

Signed and acknowledged in the presence of: -----

(As to the Employer)

Approved:

By -----,
Lt. Col., Corps of Engineers, Contracting Officer.

Date: April 9, 1943.

EMPLOYMENT WITH STANDARD OIL COMPANY (ALASKA)

FOREWORD

"EMPLOYMENT WITH STANDARD OIL COMPANY (ALASKA)" is designed to make
clear the basic employment policies for which the Company stands.

It will be realized that these policies are subject to revision in the light of
changing conditions.

If any statement in this booklet is not clear to you, you are encouraged to ask
your supervisor for a further explanation.

SEPTEMBER 1, 1942.

CONDITIONS OF EMPLOYMENT

1. New employees are selected on the basis of their qualifications for the job,
including their physical condition. Preferential consideration is given to former
employees with a good record of service with the Company who have been laid
off due to lack of work.

2. Under ordinary circumstances the Company does not employ individuals
under the age of 18 years.

3. Membership or nonmembership in any church, society, fraternity, associa-
tion, union, or other lawful organization does not affect an employee's standing
with the Company, nor is it a factor in the selection of new employees.

JOB SECURITY AND CONTINUOUS SERVICE

4. The Company is interested in stabilizing employment and will continue that
interest, endeavoring to provide as steady work as economic and operating con-
ditions permit.

5. In making promotions, transfers, and demotions, consideration is given first
to ability, then to experience, and then to length of continuous service with the
Company. If there are qualified employees within the Company the general
practice is to promote them to fill vacancies occurring in higher job classifications.

6. To establish continuous service a new employee must work the full, regular
work schedule for one month without losing more than four scheduled work-
days due to lay-off on account of lack of work. His beginning date of continuous
service will then be the first workday of such month.

7. In the event of lay-off due to lack of work, the individual's service is pro-
tected for fixed periods based on the continuous service he has accumulated
with the Company. The regulations covering protection against loss of con-
tinuous service are summarized below:

An employee working the full, regular work schedule for the position held,
whose term of employment has been less than one year and who may be

laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 30 calendar days. The total lay-off during the first year shall not exceed 45 working days of the employee's yearly work schedule.

An employee with over one year but less than three years' continuous service who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 60 calendar days. The total lay-off during the second or third year shall not exceed in either year 60 working days of the employee's yearly work schedule.

An employee with three or more years of continuous service who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 90 calendar days.

The total lay-off during the fourth year or any subsequent year of continuous service shall not exceed in any one year 90 working days of the employee's yearly work schedule.

8. When layoffs due to lack of work are necessary, consideration will be given to ability, experience, length of continuous service, and family responsibilities. As much advance notice of layoff as practicable will be given.

9. An employee whose service is terminated will be given the reason for such action at an interview with his supervisor. In any such case, if the employee feels that an injustice has been done, he may discuss the matter with higher executives of the department in their order.

WAGES

10. It is the policy of the Company to pay fair and reasonable compensation for services rendered by its employees. The Company intends to maintain its pay schedules at a level which compares favorably with average wage scales of the oil industry within its operating area. In setting rates, the Company endeavors to recognize the relative value of the various jobs.

11. Employees with less than one year of continuous service are normally paid on a daily wage basis. Employees with over one year of continuous service are normally paid on a salary basis.

WORKING SCHEDULES

12. Normal working schedules are based on the eight hour day. Employees are advised of their normal weekly working schedules as far in advance as practicable.

ADJUSTING PROBLEMS AND GRIEVANCES

13. The Company seeks to eliminate sources of misunderstanding and dissatisfaction through continued study of operating and working conditions.

14. The Company believes that employees should be free to discuss matters of mutual interest with the Company. The Company will not interfere with, restrain, or coerce its employees in exercising their right:

- (a) to self-organization;
- (b) to form, join, or assist labor organizations;
- (c) to bargain collectively through representatives of their own choosing;
- (d) to engage in lawful concerted activities, for the purpose of collective bargaining or other mutual aid or protection.

The Company will bargain collectively in respect to rates of pay, wages, hours of employment, or other conditions of employment with the representatives designated or selected for that purpose by the majority of the employees in an appropriate collective bargaining unit.

15. The lawful action of any employee taken in his capacity as a duly authorized representative of other employees will not affect his standing with the Company.

16. The Company recognizes the right of any employee to discuss with his supervisor any grievances, misunderstandings, suggestions, or problems that arise. In taking up such matters the employee is encouraged to use the following procedure so that satisfactory settlement may be made as soon as possible:

The matter should be discussed with the employee's immediate supervisor. If the employee is not satisfied, an appeal may be made to the higher executives of the department in their order, with final appeal to the Board of Directors.

TRANSFER OF EMPLOYEES

17. Employees to be transferred by the Company from one locality to another will be informed of the transfer as far in advance as practicable.

18. Employees who are loaned or transferred to the service of an affiliated or subsidiary company not participating in Standard Oil benefits will be advised in writing, at the time the position is offered, of their status in regard to Standard Oil benefits while in the service of the affiliated or subsidiary company.

19. The status of any employees who leave the Company to enter directly into military training or service shall be determined in accordance with Company policy as announced from time to time.

LEAVES OF ABSENCE

20. Employees with one or more years of continuous service may be granted leaves of absence with pay for short periods for justifiable personal reasons or emergencies, such as death or serious illness in the immediate family.

21. If consistent with operating requirements, employees may be allowed leaves of absence for reasonable periods without pay for purposes acceptable to the Company. Requests for leaves of absence without pay in excess of three days should be made in writing to the employee's supervisor and should contain a statement of the length of leave desired, its starting and closing dates, and the reason for the request. All benefits, except life insurance, are suspended during regular leaves of absence without pay of more than three days. All benefits, including life insurance, are suspended in cases of special leaves of absence.

22. Leaves of absence do not affect an employee's record of continuous service if the employee is not absent beyond the term of the leave.

HOLIDAYS

23. The following regular holidays will be observed, so far as operating requirements permit. New Year's Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Memorial Day, or some other day to be designated. If employees work on these days those employees who are eligible for overtime pay under Company regulations will receive pay at the rate of time and one-half. Other employees receive no extra compensation. The Company may, at its discretion, designate such holidays as work days or holidays. If they are designated as work days the regulations noted above shall apply. If they are designated as holidays, time off with straight time pay may be taken by the employee, except that if the holiday falls on the sixth day of work in a regular scheduled work week, those employees eligible for overtime pay under Company regulations will receive pay at the rate of time and one-half.

24. Special holidays may be observed at various points from time to time when authorized by the Company and will be extended to employees who can be spared from their work. Employees who work on a special holiday do not receive time and one-half pay or equal time off.

VACATIONS

25. All regular employees, after one year of continuous service, are eligible for an annual vacation of two weeks with pay, this vacation to be taken at the convenience of the Company. In the 25th anniversary calendar year of service with the Company, employees receive an extra three weeks' vacation with pay in addition to the regular two week period. In each 5th anniversary calendar year thereafter, employees receive four additional weeks' vacation which, with the usual two weeks, represents a six weeks' vacation with pay. Any holidays occurring during the vacation period are considered as part of the vacation.

26. For the purpose of taking trips out of the Dominion of Canada or Alaska only, the Employee provided he is entitled to a vacation under Paragraph 25 hereof, will be permitted to accumulate vacation time amounting to two weeks, three weeks or four weeks by taking a week a year from his regular two weeks' vacation, and then in the succeeding period the Employee will take this accumulated time, plus his regular annual two weeks' vacation period. The Employer will grant travel time, with pay, to the Employee to cover travel to the point of hire and return, provided that in no case will such travel time

exceed ten days. Such travel time will be limited to not over one in every three years. It is not the intention that the accumulation of vacation time under this policy will adjoin the periods of five or six weeks allowed in the 25th or later Anniversary calendar years. Pay for vacation purposes shall not include overtime. As to Employees who are eligible for overtime, such pay shall be based on regular straight time earnings for a 48-hour week. Employees may not waive vacations and draw double pay.

27. Employees will be given the opportunity to express their preference as to their vacation period. So far as is practicable, the Company will take these requests into account in scheduling vacations. Employees will be advised of their vacation dates as far in advance as practicable.

28. Employees with one or more years of continuous service who are laid off on account of lack of work will be paid in lieu of vacation not received, on the following basis: One week's vacation allowance for each completed period of six months' service between the employee's anniversary service date in the calendar year prior to leaving and the last day of Company service; if the regular vacation in the calendar year of leaving Company service has been received, two weeks' time will be deducted in computing the net allowance. Employees who are discharged or who resign are not entitled to vacation or to vacation compensation. Vacations for employees who return from military training or service will be determined by the Company upon their reemployment.

BENEFIT PLANS

29. Booklets containing the details of the Annuity Plan and the Life Insurance and Sickness Disability Benefits Plan are available to all employees. The brief summaries included here for convenience do not in any way modify the Plans as set out in the published booklets.

30. *Annuity Plan.*—Employees participate in the contributory Annuity Plan after one year of continuous service. The monthly annuity which the Plan provides at normal retirement (65 years for men and 60 for women) when combined with the monthly insurance benefit under the Social Security Act is equal to about 2% of the employee's average monthly earnings multiplied by his years of continuous service. As to employees who have completed 25 years or more of credited service, the Company guarantees to provide funds which, when added to the amounts accumulated through employees' contributions, will secure the payment of the annuities specified under the Plan. Any such employee may retire before is normal retirement date on a reduced annuity.

31. *Sickness and Non-Industrial Injury Benefits.*—The Company provides full pay benefits to employees with one or more years of continuous service if they are prevented from working due to illness or non-industrial injury, the duration of the benefits depending on the employee's length of service in accordance with the following schedule:

Duration of Benefits

Completed Years of Service:	Weeks
1 Year.....	2
2 Years.....	4
3 Years.....	6
4 Years.....	8
5 Years.....	11
6 Years.....	14
7 Years.....	17
8 Years.....	20
9 Years.....	23
10 Years.....	26

Benefits continue to accumulate at the rate of three weeks for each year of continuous service after the tenth year, but the total accumulation will not at any time exceed 26 weeks. The time previously paid for is deducted in determining at any time the period for which further payments may be made.

32. *Life Insurance.*—An employee's wife or minor children to whose support he has been contributing are eligible to life insurance in the event he dies after the completion of at least one year of continuous service. The amount of insurance payable increases with service in accordance with the following schedule:

Months of Salary Paid as Insurance

Years of Service:	Months
1 Year.....	3
2 Years.....	4
3 Years.....	5
4 Years.....	6
5 Years.....	7
6 Years.....	8
7 Years.....	9
8 Years.....	10
9 Years.....	11
10 Years or more.....	12

This insurance is provided by the Company without cost to the employee. The Company usually pays the insurance in installments to afford maximum protection to dependents of a deceased employee.

33. *Industrial Disability Benefits.*—Workmen's Compensation is payable to all employees in accordance with applicable laws in the event of industrial disability. After one year of continuous service, employees also receive the excess of their regular pay over the Workmen's Compensation set by law in the event of industrial disability. The duration of these voluntary benefits depends upon the employee's length of service in accordance with a duplicate of the schedule in Paragraph 3. These industrial disability benefits are separate and distinct from sickness and nonindustrial injury benefits.

ORDER OF SERVICE

34. Service Pins, a visual recognition of service, are presented to employees following the completion of ten years of service. The ten years of service is indicated on the gold octagonal-shaped pin by two gold stars, one for each five years' service. The completion of each subsequent five years' service brings a new pin carrying an additional star until a five-star pin (representing 25 years' service) has been received. After the completion of 30 years' service, and following each five-year anniversary thereafter, a small diamond (representing 10 years' service) supplants a star.

MEDICAL EXAMINATIONS

35. The employee periodically receives free medical examinations and is advised of any physical defects noted at the time of his regular examinations. This frequently aids the employee in detecting a physical weakness before it becomes of serious proportions. Normally each employee is examined every other year up to age 40, and annually thereafter.

ACCIDENT PREVENTION

36. The Company is sincerely interested in the well-being of its employees, and endeavors to provide safe and healthful working conditions. For many years the Company has carried on an intensive program of safety and accident prevention including frequent safety inspections, training of employees in safe practices, and protection against hazardous conditions. The supervisory force, with the assistance of the Safety Division and departmental safety engineers, is responsible for carrying out this program, and it clearly requires the constant cooperation of every employee.

ADMINISTRATION OF PERSONNEL PROGRAM

37. Executives and supervisory forces of the various departments are directly responsible for the administration of the Company's personnel policies within their respective jurisdictions. Administration of these policies is necessarily subject to any laws applicable.

38. The Employee Relations and Personnel Department serves the Board of Directors, Executives, and Supervisors in a staff and advisory capacity and aids in the maintenance, coordination, and development of the Company's personnel policies.

39. The services of the Employee Relations and Personnel Department and field representatives are available to any employee of the Company.

Supplemental Agreement No. 1
Contract No. W-2385-Eng-44

SUPPLEMENTAL AGREEMENT TO COST-PLUS-A-FIXED-FEE CONTRACT NO. W-2385-ENG.-44, DATED OCTOBER 1, 1942, FOR THE OPERATION OF PETROLEUM PRODUCTS AT PIPE LINES FROM SKAGWAY, ALASKA, TO WHITEHORSE, THE YUKON, AND OTHER POINTS IN CANADA AND ALASKA

Contractor: STANDARD OIL COMPANY OF CALIFORNIA.

Estimated cost: (Supplemental): No Change.

Fixed-fee: (Supplemental): No Change.

Supplement agreement for: Amendment to clarify intention of parties.

Payment: To be paid by Finance Officer, U. S. Army, Edmonton, Alberta, Canada.

This Supplemental Agreement is authorized by Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354—77th Congress), and Executive Order No. 9001, dated 27 December 1941.

THIS SUPPLEMENTAL AGREEMENT, entered into this 15th day of July 1943, by and between The United States of America (hereinafter referred to as the "Government"), represented by the Contracting Officer executing this Supplemental Agreement and Standard Oil Company of California (hereinafter referred to as the contractor):

WITNESSETH THAT:

WHEREAS, there is now in full force and effect between the parties hereto a certain contract providing for certain services in connection with the operation of petroleum products pipe lines from Skagway, Alaska, to Whitehorse, The Yukon, and other points in Canada and Alaska, bearing date of October 1, 1942, and being identified as Contract No. W-2385-Eng-44 (hereinafter referred to as the "principal contract"); and

WHEREAS, said principal contract provides, among other things, in Section 5 of Article IX that prior to final payment, the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of the contract, and

WHEREAS, said contract provision above mentioned was designed and incorporated in said principal contract for the purpose of enabling the Contractor to apprise the Government of anticipated claims and to enable the Government to close up records and paper work in connection with such contract, except for those items which were excepted from the operation of the release, and to protect the Government's interests to the extent of matters not excepted by such release; and

WHEREAS said provision was in no way intended to become operative as a bar to making payment to the Contractor for items otherwise reimbursable except for the provisions of such release; and

WHEREAS at the time when final payment might otherwise appropriately be made, third parties may have asserted claims against the Contractor which are not susceptible of being set forth in the release in stated amounts; and at that time it will be impossible for the Contractor to anticipate the amount and character of claims, including claims for wages, overtime or salaries alleged to be due employees by virtue of the provisions of local, State, or Federal laws or employment agreements; and

WHEREAS it is desired to clarify said principal contract so as to more clearly set forth the understanding of the parties thereto; and

WHEREAS the Secretary of War is authorized by the First War Powers Act, 1941, and Executive Order No. 9001, within the limits of the amounts appropriated therefor, to enter into amendments or modifications of contracts, and by agreement to settle claims under contract, whenever in his judgment the prosecution of the War is thereby facilitated; and

WHEREAS it has been determined by the Secretary of War that in his judgment the prosecution of the War will be facilitated by the modification of the principal contract as hereinafter set out.

NOW, THEREFORE, the parties do hereby mutually agree that said principal contract shall be and the same is hereby amended in the following manner:

1. DELETE Section 5 of Article IX of the Principal Contract and INSERT IN LIEU THEREOF the following:

"1. Prior to final payment and as a condition thereof the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of this contract, other than (a) such

claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein, or in estimated amounts where the amounts are not susceptible of exact statement, and (b) any claim based upon the responsibility of the Contractor to third parties arising out of the performance of this contract not known to the Contractor at the time of furnishing the release.

"2. Even though the existence or amount thereof shall not be determined until after the furnishing of such release as is described next above, reimbursement to be made for payments made by the Contractor shall include, along with wages and salaries otherwise reimbursable, all additional amounts determined (either by approval of the Contracting Officer or by litigation as hereinafter provided) to be due and payable for overtime compensation and allowances under local, state, or Federal laws in connection with such wages and salaries.

"3. The Contractor shall promptly notify the Contracting Officer of any claims of the type described in paragraph 1 (b) above which are asserted subsequent to the execution of the release.

"4. In the event the Contracting Officer shall determine that the best interests of the Government require that the Contractor initiate or defend litigation in connection with claims of third parties arising out of the performance of this contract, the Contractor will proceed with such litigation in good faith and the costs and expenses of such litigation, including judgments and court costs, allowances rendered or awarded in connection with suits for wages, overtime, or salaries, and reasonable attorneys' fees for private counsel when the Government does not furnish Government counsel, shall be reimbursable under this contract."

IN WITNESS WHEREOF, the parties hereto have executed this Supplemental Agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA,

By C. M. CLIFFORD,

*Lieutenant Colonel, Corps of Engineers,
Contracting Officer.*

STANDARD OIL COMPANY OF CALIFORNIA,

By J. L. HANNA, *Vice President.*

By G. M. FOSTER, *Assistant Secretary,*

Witnesses as to the signature of Contractor:

J. M. EVANS,

225 Bush St., San Francisco, Calif.

W. G. WATSON,

225 Bush St., San Francisco, Calif.

CERTIFICATION

I, A. K. STEVENSON, do hereby certify that I am the duly qualified Assistant Secretary of the corporation named herein as Contractor; that J. L. HANNA and C. M. FOSTER who signed this contract on behalf of the Contractor, were then and are now the Vice President and the Assistant Secretary, respectively, of said corporation; that said contract was duly signed for and on behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the STANDARD OIL COMPANY OF CALIFORNIA this 15th day of July 1943.

.[SEAL]

A. K. STEVENSON.

EXHIBIT No. 1085-A

Contract No. W-2385-Eng-6

U. S. A. 720

FIXED FEE CONSULTING SERVICES CONTRACT, WAR DEPARTMENT

Contractor and address: Standard Oil Company of California, Standard Oil Building, San Francisco, California.

Contract for: Consulting services and for making available to the United States the facilities of the Standard Oil Company of California in connection with the

design and development of the Norman-Whitehorse pipe line, including pumping stations, terminal storage facilities at both Norman and Whitehorse, a suitable refinery, and oil storage facilities for the several petroleum products to be produced by the proposed refinery at Whitehorse.

Location: In the Dominion of Canada.

Fixed fee: One Dollar.

Estimated cost exclusive of fixed fee: \$100,000.00.

Payment: To be made by Finance Officer, U. S. Army, Edmonton, Alberta, Canada.

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to the following procurement authorities, the available balances of which are sufficient to cover the cost of the same: Eng 30403 P 430 99A 0905-23.

Contracting Officer.

This contract is authorized by the following laws: Act approved July 2, 1940 (Public, No. 703, 76th Congress), as amended by the Act approved June 30, 1941 (Public Law 139, 77th Congress), Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354, 77th Congress, and Executive Order No. 9001, dated December 27, 1941.

Approval recommended.

THOMAS M. ROBINS,
*Major General,
Acting Chief of Engineers.*

Approved Aug. 24, 1942.

By direction of the Under Secretary of War,

ALBERT J. BROWNING,
*Colonel, A. U. S.,
Director of Purchases Division.*

FIXED FEE CONTRACT

THIS CONTRACT, entered into this 25th day of May 1942 by and between THE UNITED STATES OF AMERICA (hereinafter called the Government) represented by the Contracting Officer executing this contract, and the STANDARD OIL COMPANY OF CALIFORNIA, a corporation organized and existing under the laws of the State of Delaware (hereinafter called the Contractor), WITNESSETH THAT:

WHEREAS the Government is desirous of obtaining crude oil and natural gas produced from wells in the Dominion of Canada at the earliest possible time; and

WHEREAS the accomplishment of the hereinafter described work and services is authorized by law; and

WHEREAS the Government desires to engage the contractor to perform certain consulting services and to make available to the United States their facilities in connection with the design and development of the Norman-Whitehorse pipe line, including pumping stations, terminal storage facilities, at both Norman and Whitehorse, a suitable refinery, and oil storage facilities for the several products to be produced by the refinery at Whitehorse and Norman; and

WHEREAS the Secretary of War has requested the Standard Oil Company of California to perform consulting services in connection with the operation of the Norman-Whitehorse pipe line:

Now, THEREFORE, the parties hereto do mutually agree as follows:

ARTICLE I—STATEMENT OF WORK

1. The contractor shall in the immediate future furnish to the United States and its agents, consulting services, including the use of its laboratory facilities to accomplish the following:

The design of:

a. A four-inch, above-ground, noninsulated, crude oil pipe line approximating 550 miles long with necessary access roads including bridges, ferries and stream crossings, pumping stations, communication system, loading facilities, and appurtenant structures capable of delivering a minimum of 3,000 barrels per day (approximately 1,000,000 barrels per year) of crude petroleum produced near Norman, District of MacKenzie, Canada (hereinafter referred to as "Norman

Area") to Whitehorse, the Yukon, Canada (hereinafter referred to as "Whitehorse").

b. Terminal storage facilities at Norman Area with a minimum capacity of approximately 200,000 barrels of crude petroleum and other petroleum products produced at Norman Area.

c. Terminal storage facilities at Whitehorse with a minimum capacity of approximately 300,000 barrels of crude petroleum obtained from the Norman Area.

d. A suitable refinery under the unusual conditions existing to produce 100 octane number aviation gasoline and other petroleum products to the extent practicable from the crude petroleum obtained at Norman Area with a minimum capacity of approximately 3,000 barrels per day (approximately 1,000,000 barrels per year).

e. Oil storage facilities for the several petroleum products to be produced by the proposed refinery at Whitehorse with a minimum total capacity of 300,000 barrels.

f. Such additional non-manufacturing facilities necessary for the successful operation and use of the pipe line, refinery, and appurtenant structures.

2. When in the opinion of the Contracting Officer it is to the best interest of the United States, the Contractor shall when so ordered or authorized, engage the services of additional consultants to work with the contractor's own staff, and regardless of the amount and/or extent of work performed by these additional consultants, all with the prior written approval or order of the Contracting Officer, shall entail no adjustment in the fixed fee stipulated in Paragraph 5 (b) of Article I hereof.

3. The Contractor shall, in the immediate future, furnish and expedite all such hereinbefore mentioned consulting services, assistance and advice with respect to the general plans, designs, and construction practices, but shall not be called upon to make detailed designs and/or working drawings.

4. It is estimated that the cost of the materials, equipment, work, and services to be undertaken by Contractor herein and as listed in Article I hereof will be One Hundred Thousand Dollars (\$100,000.00), exclusive of the Contractor's fee.

5. In consideration of his undertaking under this contract the Contractor shall receive the following:

a. Reimbursement for expenditures as provided in Article II hereof; and

b. A fixed fee in the amount of One Dollar (\$1.00) which shall constitute complete compensation for the Contractor's services, including profit and all general overhead expenses.

ARTICLE II—COST OF THE WORK

Reimbursement for contractor's expenditures.—1. The Contractor shall be reimbursed in the manner hereinafter described for his actual expenditures in the performance of the work included in the following items; and which expenditures have been approved or ratified by the Contracting Officer:

a. All labor, materials, tools, equipment, supplies, and services necessary for the performance of consulting services and the use of laboratory facilities;

b. For the services of additional consultants in accordance with the provisions of this contract;

c. Transportation charges on materials, equipment, and supplies incidental to the performance of consulting services and/or the use of laboratory facilities;

d. Salaries of engineers, architects, draftsmen, and technical and administrative personnel, and other employees of Contractor engaged directly on the work provided hereunder, whether on the site or at the Contractor's home office. In case the full time of any employee of the Contractor is not applied to the work, his salary shall be included in this item only in proportion to the actual time applied thereto;

e. Payments from his own funds made by the Contractor under the Social Security Act, and any disbursements required by domestic or foreign law, which the Contractor may be required on account of this contract to pay for materials, supplies, equipment, and personnel, and, if approved in writing by the Contracting Officer in advance, permit and license fees and royalties on patents used including those owned by the Contractor;

f. If the Contractor and/or his representatives shall be required to travel, the Government will reimburse the Contractor for the transportation, including Pullman or special service where necessary, and will allow for such travel Six Dollars (\$6.00) per day in lieu of all other expenses. Transportation by automobile on such required travel shall be reimbursed at the rate of five cents (\$.05) per mile as representing the actual cost of such transportation.

All travel shall be either authorized or approved in writing by the Contracting Officer. Should the Contractor, or any representative thereof, remain in a travel status in excess of six (6) days at any one time, not including the time consumed in travel, the cost for such excess travel status shall be at the expense of the Contractor, unless otherwise ordered in writing by the Contracting Officer.

g. Such other items not expressly excluded by other provisions of this contract as should, in the opinion of the Contracting Officer, be included in the cost of the work. When such an item is allowed by the Contracting Officer, it shall be specifically certified as being allowed under this paragraph.

General.—1. Title to all materials, tools, equipment, and supplies procured in the United States or in the Dominion of Canada for which the Contractor shall be entitled to reimbursement under Article II shall vest in the Government at the point or points of procurement.

2. The Government reserves the right to furnish any materials, equipment, tools, or services, including communication services necessary for the completion of the work. The Contractor shall cause all equipment and tools and other nonexpendable items to which title is vested in the Government, to be suitably marked with an identifying mark or symbol indicating that such items are the property of the United States. The Contractor shall maintain at all times, in a manner satisfactory to the Contracting Officer, records showing the disposition and/or use of all equipment, tools, and materials purchased for the work, and for which he has been reimbursed by the Government or which have been furnished by the Government. Upon the completion of this contract or upon demand, the Contractor shall return such equipment, tools, and unused materials to the place designated by the Contracting Officer.

3. (a) The Government reserves the right to pay directly to common carriers, any or all freight or transportation charges on equipment, tools, and materials and supplies.

(b) The Government reserves the right to pay direct for all telegrams, telephone communications (including teletype and facsimile when authorized by the Contracting Officer to be installed), cablegrams, radiograms, and similar messages that may be sent by the Contractor pertaining directly to the contract for work to be done or materials to be furnished thereunder, and the contractor is hereby designated as an agent of the Government for the purpose of causing to be transmitted any such messages.

4. The Contractor shall, to the extent of his ability, take all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and bonifications, and when unable to take advantage of such benefits he shall promptly notify the Contracting Officer with the reason therefor. In determining the actual net cost of articles and materials of every kind required for the purpose of this contract, there shall be deducted from the gross cost thereof all cash and trade discounts, rebates, allowances, credits, commissions, and bonifications which have accrued to the benefit of the Contractor or would have so accrued but for the fault or neglect of the Contractor.

5. Time is of the essence of this contract, and for the purpose of facilitating the early completion of the work to be done hereunder and, insofar as work under this contract in the Dominion of Canada is concerned, the Government does hereby waive all Interdepartmental Regulations as contrasted with laws ordinarily applicable within the United States, but inconsistent with the provisions of this contract, which waiver will hasten the completion of the project.

ARTICLE III—PAYMENTS (REIMBURSEMENT FOR COST)

The Government will currently reimburse the Contractor for expenditures made in accordance with Article II upon certification to and verification by the Contracting Officer of the original signed pay rolls for labor, the receipted invoices for materials, and such other documents as the Contracting Officer may require. Generally, reimbursement will be made weekly but may be made at more frequent intervals if the conditions so warrant.

ARTICLE IV—RECORDS AND ACCOUNTS, INSPECTION AND AUDIT

1. The Contractor agrees to keep records and books of account, showing the actual cost to him of all items of labor, materials, equipment, supplies, services, and other expenditures of whatever nature for which reimbursement is authorized under the provisions of this contract. The system of accounting to be

employed by the Contractor shall be such as is satisfactory to the Contracting Officer.

2. The Contracting Officer shall at all times be afforded proper facilities for inspection of the work and shall at all times have access to the premises, work, and materials, to all books, records, correspondence, instructions, plans, drawings, receipts, vouchers, and memoranda of every description of the Contractor pertaining to said work except such documents as have been submitted in support of reimbursement vouchers; and the Contractor shall preserve such papers without additional compensation therefor, for a period of three (3) years after completion or termination of this contract.

3. Any duly authorized representative of the Contractor shall be accorded the privilege of examining the books, records, and papers of the Contracting Officer relating to the cost of the work for the purpose of checking and verifying such cost.

4. In order to avoid so far as possible duplication in accounting and auditing functions performed by the Contractor and the Government, it is agreed that the following accounting and auditing functions shall be performed by the Government exclusively:

a. Audit of original pay rolls of the Contractor (or such portions thereof as are applicable), where such pay rolls are prepared by the Contractor. (Where pay rolls are prepared by the Government, the audit thereof by the Government will be concurrent with such preparation.)

b. Such other accounting and auditing functions as may be effectively performed by Government employees, and to which the Contracting Officer and the Contractor may mutually agree in writing.

ARTICLE V—SPECIAL REQUIREMENTS

1. The Contractor hereby agrees that he will:

a. Render assistance and advice with respect to the general plans, designs, and construction practices;

b. Make available to the Government at all times during the life of this contract, the use of its facilities in connection with the design and development of the structures hereinbefore described in Article I hereof;

c. Obey and abide by all applicable laws, regulations, ordinances, and other rules of the United States of America or the Dominion of Canada, of the State, Territory, or political subdivision thereof wherein the work is done, or of any other duly constituted public authority.

d. Reduce to writing, unless this provision is waived in writing by the Contracting Officer, every contract in excess of Two Thousand Dollars (\$2,000.00) made by him for the purpose of the work hereunder for services, materials, supplies, equipment, or for the use thereof; insert therein a provision that such contract is assignable to the Government; make all such contracts in his own name, and not bind or purport to bind the Government or the Contracting Officer thereunder. No purchase in excess of Two Thousand Dollars (\$2,000.00) shall be made or placed without the prior approval of the Contracting Officer.

e. Enter into no subcontract, but may engage the services of additional consultants as may be prescribed by and with the approval of the Contracting Officer.

f. When directed by the Contracting Officer, the Contractor shall keep at the site of the work a duly appointed and qualified representative who shall receive and execute on the part of the Contractor such notices, directions, and instructions as the Contracting Officer may give.

g. The Contracting Officer may require the Contractor to dismiss from work such employee or employees as the Contracting Officer deems incompetent, careless, or insubordinate or while continued employment is deemed inimical by the Contracting Officer to the public interest. The Contractor shall make every reasonable effort in the selection of his employees and in the prosecution of the work under this contract.

h. Furnish sufficient technical, supervisory, administrative, and consulting personnel to insure satisfactory completion of the project under this contract.

ARTICLE VI—TERMINATION OF CONTRACT BY GOVERNMENT

1. The Government may terminate this contract at any time by a notice in writing from the Contracting Officer to the Contractor. Such termination shall be effective in the manner and upon the date specified in said notice, and shall

be without prejudice to any claims which the Government may have against the Contractor. Upon receipt of such notice the Contractor shall, unless the notice directs otherwise, immediately discontinue all work and the placing of all orders for materials, facilities, services, and supplies in connection with performance of this contract.

2. If this contract is terminated for the fault of the Contractor, the Contracting Officer may enter upon the premises and take possession for the purpose of completing the work contemplated by this contract, of any or all materials, tools, and equipment which may be in the possession of the Contractor, and all options, privileges, and rights, and may complete or employ any other person or persons to complete said work.

3. Upon the termination of this contract full and complete settlement of all claims of the Contractor arising out of this contract shall be made as follows:

a. The Government shall assume and become liable for all obligations, commitments, and claims that the Contractor may have theretofore in good faith undertaken or incurred in connection with said work, the cost of which would be reimbursable in accordance with the provisions of this contract; and the Contractor shall, as a condition of receiving the payments mentioned in this article, execute and deliver all such papers, and take all such steps as the Contracting Officer may require for the purpose of fully vesting in the Government the rights and benefits of the Contractor under such obligations or commitments.

b. The Government shall reimburse the Contractor for all expenditures made in accordance with Article II and not previously reimbursed.

c. The Government shall reimburse the Contractor for all expenditures after the date of termination for the protection of Government property, and for accounting services in connection with the settlement of this contract as are required or approved by the Contracting Officer.

d. The obligation of the Government to make any of the payments required by this Article shall be subject to any unsettled claims in connection with this contract which the Government may have against the Contractor.

4. Prior to final settlement the Contractor shall furnish a release as required in Paragraph 3 (a) of Article VI hereof.

ARTICLE VII—CONTRACTING OFFICER'S DECISIONS AND DISPUTES

The extent and character of the work to be done by the Contractor shall be subject to the general supervision, direction, control, and approval of the Contracting Officer, to whom the Contractor shall report and be responsible. All disputes arising under this contract shall be decided by the Contracting Officer, whose decision shall be in writing, subject to written appeal by the Contractor within thirty (30) days to the Secretary of War or his duly authorized representative, whose decision shall be final and conclusive upon the parties hereto. In the meantime, the Contractor shall diligently proceed with the work as directed.

ARTICLE VIII—CONVICT LABOR

The Contractor shall not employ, except with the approval of the Contracting Officer, any person undergoing sentence of imprisonment at hard labor.

ARTICLE IX—LABOR

1. The Contractor shall pay all those employed by him directly upon the site of the work not less often than once a week unless otherwise authorized by the Contracting Officer, the full amounts accrued at the time of payment, computed at wage rates not less than those approved by the Contracting Officer for the work herein specified.

2. Anti-Discrimination: The Contractor in performing the work required by this contract shall not discriminate against any worker because of race, creed, color, or national origin.

ARTICLE X—WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

During the life of this contract the Contractor will provide and maintain for all employees of the Contractor engaged in work under this contract, Workmen's Compensation and Employer's Liability Insurance, or such other protec-

tion for employees as may be required by Federal or State statutes of the United States of America, or by the laws of the Dominion of Canada or political subdivisions thereof in the jurisdiction in which such work is performed under direction of the Contracting Officer.

ARTICLE XI—ACCIDENT PREVENTION

In order to protect the life and health of his employees in the performance of this contract, the Contractor will comply with all pertinent provisions of the "Safety Requirements in Excavation—Building—Construction" approved by Chief of Engineers December 16, 1941 (a copy of which is on file in the Office of the Contracting Officer), and as may be amended, and will take or cause to be taken such additional measures as the Contracting Officer may determine to be reasonably necessary for this purpose. The Contractor will maintain an accurate record of, and will report to the Contracting Officer in the manner and on the forms prescribed by the Contracting Officer, all cases of death, occupational disease, and traumatic injury arising out of or in the course of employment on work under this contract.

ARTICLE XII—OFFICIALS NOT TO BENEFIT

No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE XIII—COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that he has not employed any person to solicit or secure this contract upon any agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give the Government the right to terminate the contract, or in its discretion, to deduct from payments due the Contractor the amount of such commission, percentage, brokerage, or contingent fee. This warranty shall not apply to commissions payable by Contractors upon contracts or sales secured or made through bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

ARTICLE XIV—CONTRACTOR'S ORGANIZATION AND METHODS

Upon the execution of this contract, the Contractor shall submit to the Contracting Officer a chart showing in general the executive and administrative organization, duties, and personnel to be employed in connection with the work under the contract; the data so furnished shall be supplemented as additional information becomes available.

ARTICLE XV—Assignment of Claims

1. Neither this contract, nor any interest therein except as otherwise provided in this article shall be assigned or transferred by the Contractor to any other party or parties. Claims for monies due or to become due the Contractor from the Government arising out of this contract may be assigned to any bank, trust company or other financing institution, including any Federal lending agency. Any such assignment shall cover all amounts payable under this contract and not already paid, and shall not be made to more than one party, except that any such assignment may be made to one party as agent or trustee for two or more parties participating in such financing:

Provided that in the event of any such assignment, the assignee thereof shall file written notice in quadruplicate of the assignment together with a true copy of the instrument of assignment with:

- a. The General Accounting Office;
- b. The Contracting Officer;
- c. The surety or sureties upon the bond or bonds, if any, in connection with this contract; and
- d. The Disbursing Officer designated to make payments under this contract.

2. Any claim under this contract which may be assigned may be subject to further assignment to a bank, trust company, or other financing institution, including any Federal lending agency, and to similar further assignment:

Provided that any such assignee shall file written notice of the further assignment together with a true copy of the instrument of further assignment with the Contractor and also as provided in Paragraph 1 above with respect to original assignment.

3. Payments to an assignee or any claims arising under this contract shall not be subject to reduction or set-off for any indebtedness of the assignor to the United States arising independently of this contract.

ARTICLE XVI—EXPERT TECHNICAL ASSISTANCE

When in the judgment of the Contractor the complexity and nature of the work hereinbefore described are such as to require additional expert technical assistance, or services, or advice in connection with special phases of the work such as problems of highly technical character, the Contractor may employ directly, with the consent and approval of the Contracting Officer, such supplemental professional services incidental to such consulting work.

ARTICLE XVII—APPROVAL REQUIRED

This contract shall be subject to the approval of the Secretary of War or any person designated by him.

ARTICLE XVIII—ALTERATIONS

The following changes were made in this contract before it was signed by the parties hereto:

In the fifth line on page 3 hereof, the word "Delaware" was substituted for the word "California."

Allotment No. 30403 was substituted in lieu of No. 30729.

Article XV hereof has been deleted, and the following Article substituted therefor:

"ARTICLE XV

"Neither this contract, nor any interest therein, or claim thereunder, shall be assigned or transferred by the Contractor to any party or parties."

IN WITNESS WHEREOF the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA,
By THEODORE WYMAN, JR.,
Colonel, Corps of Engineers, Contracting Officer.

Contractor:

STANDARD OIL COMPANY OF CALIFORNIA,
By J. L. HANNA, *Vice President.*
G. M. FOSTER, *Assistant Secretary.*

Witnesses as to signature of Contractor:

S. S. HUNN,
225 Bush St., San Francisco.

C. N. TURNER,
225 Bush St., San Francisco.

CERTIFICATION

I, A. K. Stevenson, do hereby certify that I am the duly qualified Assistant Secretary of the corporation named herein as Contractor; that J. L. Hanna and G. M. Foster, who signed this contract on behalf of the Contractor were then Vice President and Assistant Secretary, respectively, of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the STANDARD OIL COMPANY OF CALIFORNIA, this 27th day of July 1942.

[CORPORATE SEAL]

A. K. STEVENSON,
Assistant Secretary.

CERTIFICATION

I, A. K. Stevenson, do hereby certify that I am the duly qualified Assistant Secretary of the corporation named herein as Contractor; that J. L. Hanna and G. M. Foster, who signed this contract in behalf of the Contractor, are the Vice President and Assistant Secretary, respectively, of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of the governing body, and is within the scope of the corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the STANDARD OIL COMPANY OF CALIFORNIA this 27th day of July 1942.

[SEAL]

A. K. STEVENSON,
Assistant Secretary.

Standard Form No. 1036—Revised

Form approved by
Comptroller General, U. S.
November 12, 1937
Gen. Reg. No. 51, Sup. No. 6

No. W-2385-Eng-6
(Contract)
Date May 25, 1942

STATEMENT AND CERTIFICATE OF AWARD

War Department: U. S. Engineers Office, Canol Project. McLeod Building
Edmonton, Alberta

METHOD OF OR ABSENCE OF ADVERTISING

(Section 3709 of the Revised Statutes)

1. After advertising in newspapers.
2. (a) After advertising by circular letters sent to ----- dealers.
(b) And by notices posted in public places.
(If notices were not posted in addition to advertising by circular letters sent to dealers, explanation of such omission must be made. The notation on the certificate below must be "2 (a) (b)" or "2 (a)," depending on whether or not notices were posted.)
3. Without advertising, under an exigency of the service which existed prior to the order and would not admit of the delay incident to advertising.
4. Without advertising in accordance with-----
5. Without advertising, it being impracticable to secure competition because of emergency purposes (Canol Project).

AWARD OF CONTRACT

- A. To lowest bidder as to price (Expenditures).
- B. To other than the lowest bidder as to price (Expenditures).
- C. To highest bidder as to price (Receipts).
- D. To other than the highest bidder as to price (Receipts).

CERTIFICATE

I certify that the foregoing statement is true and correct; that the agreement was made in consequence of No. 5 of the method of or absence of advertising and in accordance with award of contract lettered A, as shown above; that the total number of bids received is —, and that where lower bids (expenditure contracts) or higher bids (receipt contracts) as to price were received a statement of reasons for their rejection, together with an abstract of bids received, including all lower than that accepted in case of expenditure contracts and all higher in case of receipt contracts, is given below or on the reverse hereof or on a separate sheet attached hereto; that the articles or services covered by the agreement (expenditure) are necessary for the public service, and that the prices charged are just and reasonable.

Contractor.—Standard Oil Company of California, Standard Oil Building, San Francisco, California.

Award made in accordance with Sec. 1 (a) Act of July 2, 1940, 703—76th Congress, as continued in effect by Sec. 9, Military Appropriations Act, June 30,

1941, and Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354—77th Cong.), and Executive Order No. 9001, dated December 27, 1941.

THEODORE WYMAN, Jr.,
(Signature of contracting officer)
Colonel, Corps of Engineers,
Contracting Officer.

*NOTE.—This statement and certificate will be used to support all agreements, both formal contracts and less formal agreements of whatever character, involving the expenditure or receipt of public funds. It must be executed and signed by the contracting officer (unless the award is made by or is subject to approval by an officer other than the contracting officer, when execution and signature may be made by such officer).

CERTIFICATION

I, A. K. Stevenson do hereby certify that I am the duly qualified Assistant Secretary of the corporation named herein as Contractor; that J. L. Hanna and G. M. Foster, who signed this contract in behalf of the Contractor, are the Vice President and Assistant Secretary, respectively, of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of the governing body, and is within the scope of the corporate powers.

IN WITNESS WHEREOF I have hereunto affixed my hand and the seal of the Standard Oil Company of California this 27th day of July 1942.

[SEAL]

A. K. STEVENSON,
Assistant Secretary.

EXHIBIT No. 1085-B

Allotment No. Eng-30729-P430-99-A0905-23

Supplemental Agreement No. 1
Contract No. W-2385-Eng-6
U. S. A. 7.20.
Negotiated Contract

SUPPLEMENTAL CONTRACT

This supplemental agreement entered into this 20th day of November 1942, by and between the UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this agreement, and Standard Oil Company of California, a corporation organized and existing under the laws of the State of Delaware, hereinafter called the Contractor,

WITNESSETH THAT:

WHEREAS, On the 25th day of May, 1942, the parties hereto entered into Contract No. W-2385-Eng-6 for consulting services and for making available to the United States the facilities of the Standard Oil Company of California in connection with the design and development of the Norman-Whitehorse pipe line, including pumping stations, terminal storage facilities at both Norman and Whitehorse, a suitable refinery, and oil storage facilities for the several petroleum products to be produced by proposed refinery at Whitehorse; and

WHEREAS, The Contracting Officer has requested that under said contract the Contractor also furnish its consulting services and facilities in connection with the design and development of pipe lines for the transportation of petroleum products from Skagway to Whitehorse, from Carcross to Watson Lake, from Whitehorse to Fairbanks, and from Fairbanks to Tanana, together with terminals, tankage, pumping stations, and appurtenances forming a part thereof; and in connection with the design and development of facilities for handling petroleum products at Prince Rupert; and

WHEREAS, it is found advantageous and in the best interests of the United States to modify said contract in the following particulars, and in the following particulars only;

1. The *Statement of Work* described in Article 1 is hereby modified to include the following:

(a) Contractor shall have full responsibility for preparation of all engineering designs for all structures and engineering services for the Canol Project,

including those designed by Bechtel-Price-Callahan, the Constructors, in accordance with the terms of their Contract No. W-412-Eng-53, and by J. Gordon Turnbull and Sverdrup and Parcel, the Architect-Engineer, in accordance with the terms of their Contract No. W-412-Eng-54.

2. It is the intent of the parties hereto that the Contractor shall derive no profit from the work performed under Contract No. W-2385-Eng-6 or under this Supplemental Agreement. It is likewise the intent that no such profit shall accrue to any wholly owned subsidiary of the Contractor performing work hereunder as a subcontractor as hereinafter provided.

3. The present preliminary estimate of the cost of materials, equipment, work and services covered by this Supplemental Agreement, is Two Hundred Thirty-seven Thousand Five Hundred Dollars (\$237,500).

It is expressly understood, however, that neither the Government nor the Contractor guarantees the correctness of the above-mentioned estimate. The estimated cost set forth above is based on data now available and agreed to by both the Government and the Contractor, a copy of which estimate is on file in the office of the Contracting Officer.

4. In consideration of its undertaking the work described in Subparagraph (a) of Paragraph 1 of this Supplemental Agreement, and to complete the work in the shortest possible time, the Contractor shall receive the following:

(a) An additional fixed-fee in the amount of One Dollar (\$1.00) which shall constitute full compensation for the Contractor's services under this Supplemental Agreement including profit and all general overhead expenses.

(b) In addition to the payment of the fixed-fee as specified herein, the Contractor shall be reimbursed for such of its actual expenditures in the performance of the work as may be approved or ratified by the Contracting Officer and as are included in the following items:

(1) Cost of annuity and life insurance allowances under the Contractor's established plans with respect thereto as described in Exhibit "A" hereof. The said cost is not demonstrable precisely in respect of any individual employee in advance of actual payment of the said allowances. On the basis, however, of the Contractor's records, the estimated cost to the Contractor for provision for said allowances for its employees while engaged in work under Contract No. W-2385-Eng-6 and this Supplemental Agreement is in the amount of \$12,500.

(1a) Cost to the Contractor of drafting supplies, stationery, general office supplies, laboratory supplies, and minor office expenses such as local phone calls at the Contractor's Home Office and Research Laboratory. It being impracticable to segregate such supplies and expenses for work under Contract No. W-2385-Eng-6 and this Supplemental Agreement from those required for the Contractor's normal business, it is necessary to estimate said costs on the basis of the Contractor's records. The said cost is estimated in amount of \$4,500.

(1) Salaries or wages paid to engineers, architects, draftsmen and technical and administrative personnel, and other employees of Contractor directly engaged on the work provided hereunder, whether on the site or at the Contractor's home office, as may be necessary to carry out the provisions of this Supplemental Agreement. Such salaries shall not be in excess of the amounts approved by the Contracting Officer in writing, it being understood, however, that the Contractor shall pay its home office employees engaged in work hereunder at the same salary rates currently paid such employees for handling the Contractor's own work; and it is further understood that the said salary rates will be approved by the Contracting Officer.

(2) In case the full time of one or more employees of the Contractor is not applied to the work hereunder, the salaries or wages of such employees shall be included in this item only in proportion to the actual time applied thereto.

(3) Reimbursement under this Article shall include all actual expenditures directly chargeable to the work and services provided herein performed at the Contractor's home office, its field offices, or elsewhere.

(4) If employees of the Contractor shall be required to travel, the Government will reimburse the Contractor for transportation, including Pullman where necessary, and will allow the traveler Six Dollars (\$6.00) per day in lieu of all other expenses within the continental limits of the United States, and Seven Dollars (\$7.00) per day in Alaska and Canada. These rates of reimbursement shall be effective as of the date of this Supplemental Agreement No. 1, for all

work done under both Contract No. W-2385-Eng-6 and this Supplemental Agreement on and after said date.

Authorized transportation by automobile shall be reimbursed at the rate of Five cents (\$.05) per mile as representing the actual cost of such transportation.

All travel shall be either authorized or approved in writing by the Contracting Officer. Should the Contractor, or any representative thereof, remain in a travel status in excess of six (6) days at any one time, not including the time consumed in travel, the cost for such excess travel status shall be at the expense of the Contractor, unless otherwise ordered in writing by the Contracting Officer.

(5) Payment from its own funds made by the Contractor under the Social Security Act, and any disbursements required by domestic or foreign law, which the Contractor may be required on account of this contract to pay for materials, supplies, equipment and personnel, and, if approved in writing by the Contracting Officer in advance, permit and license fees and royalties on patents used including those owed by the Contractor.

In the event the Contractor or its wholly-owned subsidiary performing work as a subcontractor pursuant to the fourth paragraph of Section 11 hereof is required to pay any income, profits or license tax on account of work under Contract No. W-2385-Eng-6 of this Supplemental Agreement under the laws of the Dominion of Canada or its political subdivisions, the amount of such tax shall be a reimbursable item hereunder.

(6) The actual cost of expenditures made by the Contractor under the provisions of Article III, Contract No. W-2385-Eng-6.

(7) All labor, materials, tools, equipment, supplies and services necessary for the performance of consulting services and the use of laboratory facilities.

(8) For the services of additional consultants in accordance with the provisions of this contract.

(9) Transportation charges on materials, equipment, and supplies incidental to the performance of consulting services and/or the use of laboratory facilities.

(10) The cost to the Contractor of vacations and sickness and disability benefits with respect to its employees engaged in work under Contract No. W-2385-Eng-6 and this Supplemental Agreement, in accordance with the Contractor's established plans with respect thereto as described in a booklet entitled "Employment with Standard Oil Company of California," dated April 1, 1942, attached hereto as Exhibit "A".

(11) Such other items not expressly excluded by other provisions of this contract as should, in the opinion of the Contracting Officer, be included in the cost of the work. When such an item is allowed by the Contracting Officer, it shall be specifically certified as being allowed under this paragraph.

The Contractor shall post at the various places in the United States, Canada, and Alaska where work is being performed on the Canol Project, one or more representatives to insure that plans and designs are being prepared in accordance with the Contractor's requirements and that the construction work is being performed in accordance with plans and designs approved by the Contractor.

The Contracting Officer does hereby appoint as his representative, Mr. H. H. Hall, giving said representative full authority to direct work covered by Supplemental Agreement herein.

The Contractor may sublet work under this Supplemental Agreement, upon approval of same by the Contracting Officer, to wholly-owned subsidiary company, or companies, of the Contractor herein.

All provisions of Contract No. W-2385-Eng-6 dated May 25, 1942, are in full force and effect, except as expressly modified by this Supplemental Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA,

By THEODORE WYMAN, JR.,

Colonel, Corps of Engineers,

Contracting Officer.

Contractor:

STANDARD OIL COMPANY OF CALIFORNIA,

By J. L. HANNA, *Vice President.*

B. L. LETCHER, *Secretary.*

Witnesses as to signature of Contractor:

W. G. WATSON,

225 Bush St., San Francisco, Calif.

L. L. MOORE,

225 Bush St., San Francisco, Calif.

CERTIFICATION

I, A. K. STEVENSON, do hereby certify that I am the duly qualified Assistant Secretary of the corporation named herein as Contractor; that J. L. HANNA and B. W. LETCHER who signed this contract on behalf of the Contractor, were then and are now the Vice President and the Secretary respectively, of said corporation; that said contract was duly signed for and on behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the STANDARD OIL COMPANY OF CALIFORNIA this 6th day of February 1943.

[SEAL]

A. K. STEVENSON,
Assistant Secretary.

EXHIBIT A

Contract No. W-2385-Eng-6—Supplemental Agreement No. 1

EMPLOYMENT WITH STANDARD OIL COMPANY OF CALIFORNIA

FOREWORD

"EMPLOYMENT WITH STANDARD OIL COMPANY OF CALIFORNIA" is designed to make clear the basic employment policies for which the Company stands. Nearly all of these policies are long established and familiar to most employees, but it is believed a concise statement of them will prove of interest and value.

The policies set forth in this booklet apply in the following branches of the Company's operations:

- Producing Department.
- Pipe Line Department.
- Natural Gasoline Department.
- Manufacturing Department.
- Research and Development Department.
- Purchase and Stores Department.
- Marine Dept. (Shore Personnel).
- Marketing Department.
- Motor Transportation.
- Building Operations.
- Service Departments.

These policies are also applicable to employees of Standard Gas Company and The California Company—Pipe Line Department, operating in California.

It will be realized that these policies are subject to revision in the light of changing conditions.

If any statement in this booklet is not clear to you, you are encouraged to ask your supervisor for a further explanation.

CONDITIONS OF EMPLOYMENT

1. New employees are selected on the basis of their qualifications for the job, including their physical condition. Preferential consideration is given to former employees with a good record of service with the Company who have been laid off due to lack of work.

2. Under ordinary circumstances the Company does not employ individuals under the age of 18 years.

3. Membership or nonmembership in any church, society, fraternity, association, union, or other lawful organization does not affect an employee's standing with the Company, nor is it a factor in the selection of new employees.

JOB SECURITY AND CONTINUOUS SERVICE

4. For many years the Company has been interested in stabilizing employment and will continue that interest, endeavoring to provide as steady work as economic and operating conditions permit.

5. In making promotions, transfers, and demotions, consideration is given first to ability, then to experience, and then to length of continuous service with the Company. If there are qualified employees within the Company or its subsidiaries, the general practice is to promote them to fill vacancies occurring in higher job classifications.

6. To establish continuous service a new employee must work the full, regular work schedule for one month without losing more than four scheduled workdays due to lay-off on account of lack of work. His beginning date of continuous service will then be the first workday of such month.

7. In the event of lay-off due to lack of work, the individual's service is protected for fixed periods based on the continuous service he has accumulated with the Company. The regulations covering protection against loss of continuous service are summarized below:

An employee working the full, regular work schedule for the position held, whose term of employment has been less than one year and who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 30 calendar days. The total lay-off during the first year shall not exceed 45 working days of the employee's yearly work schedule.

An employee with over one year but less than three years' continuous service who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 60 calendar days. The total lay-off during the second or third year shall not exceed in either year 60 working days of the employee's yearly work schedule.

An employee with three or more years of continuous service who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 90 calendar days. The total lay-off during the fourth year or any subsequent year of continuous service shall not exceed in any one year 90 working days of the employee's yearly work schedule.

8. When layoffs due to lack of work are necessary, consideration will be given to ability, experience, length of continuous service, and family responsibilities. As much advance notice of layoff as practicable will be given.

9. An employee whose service is terminated will be given the reason for such action at an interview with his supervisor. In any such case, if the employee feels that an injustice has been done, he may discuss the matter with higher executives of the department in their order.

WAGES

10. It is the policy of the Company to pay fair and reasonable compensation for services rendered by its employees. The Company intends to maintain its pay schedules at a level which compares favorably with average wages scales of the oil industry within its operating area. In setting rates, the Company endeavors to recognize the relative value of the various jobs.

11. Employees with less than one year of continuous service are normally paid on a daily wage basis. Employees with over one year of continuous service are normally paid on a salary basis.

WORKING SCHEDULES AND OVERTIME

12. Normal working schedules are based on the 8-hour day. Employees are advised of their normal weekly working schedules as far in advance as practicable.

13. Classified operating, mechanical, and sales employees and clerical employees up to and including the classification of Head Clerk "A" are paid at the rate of time and one-half for work in excess of their regular schedules. The schedules for some positions are established on both a daily and weekly basis. The schedules for certain other positions are established on a weekly basis only.

ADJUSTING PROBLEMS AND GRIEVANCES

14. The Company seeks to eliminate sources of misunderstanding and dissatisfaction through continued study of operating and working conditions.

15. The Company believes that employees should be free to discuss matters of mutual interest with the Company. The Company will not interfere with, restrain, or coerce its employees in exercising their right:

- (a) to self-organization;
- (b) to form, join, or assist labor organizations;
- (c) to bargain collectively through representatives of their own choosing;
- (d) to engage in lawful concerted activities, for the purpose of collective bargaining or other mutual aid or protection.

The Company will bargain collectively in respect to rates of pay, wages, hours of employment, or other conditions of employment with the representatives designated or selected for that purpose by the majority of the employees in an appropriate collective bargaining unit.

16. The lawful action of any employee taken in his capacity as a duly authorized representative of other employees will not affect his standing with the Company.

17. The Company has always recognized the right of any employee to discuss with his supervisor any grievances, misunderstandings, suggestions, or problems that arise. In taking up such matters the employee is encouraged to use the following procedure so that satisfactory settlement may be made as soon as possible:

The matter should be discussed with the employee's immediate supervisor.

If the employee is not satisfied, an appeal may be made to the higher executives of the department in their order, with final appeal to the Board of Directors.

TRANSFER OF EMPLOYEES

18. Employees to be transferred by the Company from one locality to another will be informed of the transfer as far in advance as practicable.

19. Employees who are loaned or transferred to the service of an affiliated or subsidiary company not participating in Standard Oil benefits will be advised in writing, at the time the position is offered, of their status in regard to Standard Oil benefits while in the service of the affiliated or subsidiary company.

MOVING EXPENSES AND TRANSPORTATION

20. When the Company transfers an employee, and the transfer necessitates his changing his residence, the Company will bear the reasonable cost and assist in making the arrangements for transportation and the moving of personal effects. However, employees are required to pay their own moving expenses when they request a transfer from one location to another, or when they accept the offer of a job in another location in lieu of lay-off in their present location.

21. Employees, when authorized to drive their own automobiles on Company business, are paid a mileage allowance.

CIVIC DUTIES

22. Employees required to serve as jurors or to attend court or coroner's inquest as witnesses receive for the time absent in either capacity the excess of their regular pay over the fees received.

23. No deduction is made from wages or salaries due to absence from work because of service on public election boards.

24. All employees registered and entitled vote at National, State, County, or Municipal elections are, if necessary, allowed sufficient time off with pay to exercise this important privilege.

25. The status of any employees who leave the Company to enter directly into military training or service shall be determined in accordance with Company policy as announced from time to time.

LEAVES OF ABSENCE

26. Employees with one or more years of continuous service may be granted leaves of absence with pay for short periods for justifiable personal reasons or emergencies, such as death or serious illness in the immediate family.

27. If consistent with operating requirements, employees may be allowed leaves of absence for reasonable periods without pay for purposes acceptable to the Company. Requests for leaves of absence without pay in excess of three days should be made in writing to the employee's supervisor and should contain a statement of the length of leave desired, its starting and closing dates, and the reason for the request. All benefits, except life insurance, are suspended during regular leaves of absence without pay of more than three days. All benefits, including life insurance, are suspended in cases of special leaves of absence.

28. Leaves of absence do not affect an employee's record of continuous service if the employee is not absent beyond the term of the leave.

HOLIDAYS

29. The following regular holidays are observed throughout the Company, so far as operating requirements permit: New Year's Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Armistice Day, Thanksgiving Day, Christmas Day. When any of the above holidays falls on Sunday and the general practice is to recognize the next day, Monday, as the holiday, then the Company will recognize the Monday and not Sunday as the holiday.

30. Employees with one or more years of continuous service and those paid on a salary basis receive their regular pay for holidays observed when such holidays fall on their scheduled work days.

31. Classified operating, mechanical, and sales employees and classified clerical employees up to and including Head Clerk "A" who work on a regular holiday are compensated for such work at the rate of time and one-half. A non-shift or non-tour employee with one or more years of continuous service may, at his option, receive equal time off with pay at the convenience of the Company, rather than pay at the rate of time and one-half for work within his normal scheduled hours on a regular holiday.

32. Special holidays may be observed at various points from time to time when authorized by the Company and will be extended to employees who can be spared from their work. Employees who work on a special holiday do not receive time and one-half pay or equal time off.

VACATIONS

33. All regular employees, after one year of continuous service, are eligible for an annual vacation of two weeks with pay, this vacation to be taken at the convenience of the Company. In the 25th anniversary calendar year of service with the Company, employees receive an extra three weeks' vacation with pay in addition to the regular two-week period. In each 5th anniversary calendar year thereafter, employees receive four additional weeks' vacation which, with the usual two weeks, represents a six weeks' vacation with pay. Any holidays occurring during the vacation period are considered as part of the vacation.

34. Vacations are non-cumulative and are to be taken within the calendar year. Employees may not waive vacations and draw double pay.

35. Employees will be given the opportunity to express their preference as to their vacation period. So far as is practicable, the Company will take these requests into account in scheduling vacations. Employees will be advised of their vacation dates as far in advance as practicable.

36. Employees with one or more years of continuous service who are laid off on account of lack of work will be paid in lieu of vacation not received, on the following basis: One week's vacation allowance for each completed period of six months' service between the employee's anniversary service date in the calendar year prior to leaving and the last day of Company service; if the regular vacation in the calendar year of leaving Company service has been received, two weeks' time will be deducted in computing the net allowance. Employees who are discharged or who resign are not entitled to vacation or to vacation compensation. Vacations for employees who return from military training or service will be determined by the Company upon their reemployment.

BENEFIT PLANS

37. Booklets containing the details of the Annuity Plan and the Life Insurance and Sickness Disability Benefits Plan are available to all employees. The brief summaries included here for convenience do not in any way modify the Plans as set out in the published booklets.

38. *Annuity Plan*.—Employees participate in the contributory Annuity Plan after one year of continuous service. The monthly annuity which the Plan provides at normal retirement (65 years for men and 60 for women) when combined with the monthly insurance benefit under the Social Security Act is equal to about 2 percent of the employee's average monthly earnings multiplied by his years of continuous service. As to employees who have completed 25 years or more of credited service, the Company guarantees to provide funds which, when added to the amounts accumulated through employees' contributions, will secure the payment of the annuities specified under the Plan. Any such employee may retire before his normal retirement date on a reduced annuity.

39. *Sickness and Nonindustrial Injury Benefits*.—The Company provides full pay benefits to employees with one or more years of continuous service if they

are prevented from working due to illness or nonindustrial injury, the duration of the benefits depending on the employee's length of service in accordance with the following schedule:

Duration of benefits

Completed years of service :	Weeks	Completed years of service :	Weeks
1 year-----	2	6 years-----	14
2 years-----	4	7 years-----	17
3 years-----	6	8 years-----	20
4 years-----	8	9 years-----	23
5 years-----	11	10 years-----	26

Benefits continue to accumulate at the rate of three weeks for each year of continuous service after the tenth year, but the total accumulation will not at any time exceed 26 weeks. The time previously paid for is deducted in determining at any time the period for which further payments may be made.

40. *Life Insurance*.—An employee's wife or minor children to whose support he has been contributing are eligible to life insurance in the event he dies after the completion of at least one year of continuous service. The amount of insurance payable increases with service in accordance with the following schedule:

Months of salary paid as insurance

Years of service :	Months	Years of service :	Months
1 year-----	3	6 years-----	8
2 years-----	4	7 years-----	9
3 years-----	5	8 years-----	10
4 years-----	6	9 years-----	11
5 years-----	7	10 years or more-----	12

This insurance is provided by the Company without cost to the employee. The Company usually pays the insurance in installments to afford maximum protection to dependents of a deceased employee.

41. *Industrial Disability Benefits*.—Workmen's Compensation is payable to all employees in accordance with applicable laws in the event of industrial disability. After one year of continuous service, employees also receive the excess of their regular pay over the Workmen's Compensation set by law in the event of industrial disability. The duration of these voluntary benefits depends upon the employee's length of service in accordance with a duplicate of the schedule in Paragraph 39. These industrial disability benefits are separate and distinct from sickness and non-industrial-injury benefits.

ORDER OF SERVICE

42. Service Pins, a visual recognition of service, are presented to employees following the completion of ten years of service. The ten years of service is indicated on the gold octagonal-shaped pin by two gold stars, one for each five years' service. The completion of each subsequent five years' service brings a new pin carrying an additional star until a five-star pin (representing 25 years' service) has been received. After the completion of 30 years' service, and following each five-year anniversary thereafter, a small diamond (representing 10 years' service) supplants a star.

MEDICAL EXAMINATIONS

43. The employee periodically receives free medical examinations and is advised of any physical defects noted at the time of his regular examinations. This frequently aids the employee in detecting a physical weakness before it becomes of serious proportions. Normally each employee is examined every other year up to age 40, and annually thereafter.

ACCIDENT PREVENTION

44. The Company is sincerely interested in the well-being of its employees, and endeavors to provide safe and healthful working conditions. For many years

the Company has carried on an intensive program of safety and accident prevention including frequent safety inspections, training of employees in safe practices, and protection against hazardous conditions. The supervisory force, with the assistance of the Safety Division and departmental safety engineers, is responsible for carrying out this program, and it clearly requires the constant cooperation of every employee.

ADMINISTRATION OF PERSONNEL PROGRAM

45. Executives and supervisory forces of the various departments are directly responsible for the administration of the Company's personnel policies within their respective jurisdictions. Administration of these policies is necessarily subject to any laws applicable.

46. The Employee Relations and Personnel Department serves the Board of Directors, Executives, and Supervisors in a staff and advisory capacity and aids in the maintenance, coordination, and development of the Company's personnel policies.

47. The services of the Employee Relations and Personnel Department and field representatives are available to any employee of the Company.

COST ESTIMATE—CANOL CONSULTING SERVICE CONTRACT

(W-2385-Eng-6 and Supplemental Agreement No. 1)

In the following tabulation is an estimate of the cost of the work to be performed by Standard Oil Company of California under Contract No. W-2385-Eng-6 and Supplemental Agreement No. 1 thereof, and by a wholly-owned subsidiary company, or companies, to which work may be sublet pursuant to the provisions of said Supplemental Agreement No. 1. The total estimated cost given hereunder includes the cost of work contemplated in the original Contract No. W-2385-Eng-6 (estimated at \$100,000), as well as the additional work described in Supplemental Agreement No. 1.

This estimate is submitted pursuant to the provision of Paragraph 3 of Supplemental Agreement No. 1.

1. Work performed at contractor's home office:

1.1 Engineering Department:

- 1.11 Consulting services on designs of Architect-Engineer and Bechtel-Price-Callahan; and review of designs incident to Consultant's approval: *Estimated cost*

Salaries of engineers.....	\$50,000
Salaries of stenographic and clerical employees.....	5,000

- 1.12 Detailed designs, working drawings and specifications for Houdry Catalytic Unit and Catalytic Distillation Unit, Whitehorse Refinery:

Salaries of engineers and draftsmen (Houdry Catalytic Unit).....	44,000
Salaries of engineers and draftsmen (Catalytic Distillation Unit).....	14,500
Salaries of stenographic and clerical employees.....	4,500

- 1.13 Engineering Department costs other than direct salaries:

Blueprint and reproduction costs.....	2,500
Petty Cash for meals of employees on overtime work.....	3,200
Transportation and traveling expenses to points other than Canada and Alaska.....	4,000

1.2 Research and Development Department:

- 1.21 Consulting service on process designs:

Salaries of engineers, laboratory technicians, and clerical employees.....	35,000
Transportation and traveling expense.....	6,000

9762 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

1. Work performed at contractor's home office—Continued.	
1.3 Pipe Line and Manufacturing Departments:	
1.31 Review and approval of Pipe Line and Refinery Facilities:	
Salaries of Departmental engineers and executives designated to review designs and specifications -----	20,000
Salaries of stenographic and clerical employees -----	2,000
1.4 Staff Departments:	
1.41 Accounting, Personnel, and Other Services Salaries -----	14,000
1.5 Miscellaneous:	
1.51 Social Security Taxes -----	6,000
1.52 Expense of vacations and sickness and disability allowances per Exhibit "A" of Supplemental Agreement No. 1 -----	14,500
2. Work performed in Canada and Alaska:	
2.1 Consulting services on designs prepared by Architect-Engineer and Bechtel-Price-Callahan; review and approval of designs; inspection and approval of installation by Constructor:	
2.11 Pipe Lines (Canol Nos. 1, 2, 3, 4, 5): Salaries of engineers and inspectors -----	38,000
2.12 Refinery (Canol No. 1): Salaries of engineers and inspectors -----	24,000
2.13 Offices at Edmonton, Skagway, Whitehorse:	
Salaries of stenographic and clerical employees -----	10,000
Office supplies and equipment -----	3,000
2.14 Miscellaneous:	
Transportation and Travel Expense -----	40,000
Social Security Taxes (FOAB, UCT) -----	2,000
Expense of vacation and sickness and disability allowances per Exhibit "A" of Supplemental Agreement No. 1 -----	5,500
Total estimated cost -----	337,500

EXHIBIT No. 1085-C

Standard Oil Company of California,
San Francisco, California.

May 15, 1943,
Change Order No. 1 to
Supplemental Agreement No. 1,
Contract No. W-2385-Eng-6.

CHANGE ORDER

to Cost-Plus-A-Fixed-Fee Contract No. W-2385-Eng-6 dated May 25, 1942, between The United States of America and Standard Oil Company of California for consulting services and for making available to the United States the facilities of the Contractor in connection with the design and development of a pipe line and refinery, together with necessary facilities, in the vicinity of and between Whitehorse and Norman, Dominion of Canada.

Pursuant to the authority vested in the Contracting Officer under Contract No. W-2385-Eng-6, you as Contractor are hereby directed to modify the work and services indicated below.

For the purpose of expediting the work and to more definitely define the obligations and responsibilities of the Contractor under the above-entitled contract as heretofore modified, it has been determined necessary and in the best interests of the United States to modify Supplemental Agreement No. 1, dated November

20, 1942, of said contract, in the following particulars and in the following particulars only.

1. The Statement of Work described in paragraph 1 (a) of Supplemental Agreement No. 1, dated November 20, 1942, reading as follows:

"(a) Contractor shall have full responsibility for preparation of all engineering designs for all structures and engineering services for the Canol Project, including those designed by Bechtel-Price-Callahan, the Constructors, in accordance with the terms of their Contract No. W-412-Eng-53, and by J. Gordon Turnbull and Sverdrup and Parcel, the Architect-Engineer, in accordance with the terms of their Contract No. W-412-Eng-54,"

is hereby deleted in its entirety.

2. There is hereby substituted in place of the provision hereinabove deleted under paragraph 1 (a) of Supplemental Agreement No. 1, the following provisions:

"(a) Furnish to the United States and its Agents, consulting services, including but not limited to the use of its laboratory facilities, to accomplish the design and construction of the petroleum system.

"(b) Review and recommend for approval the design of all facilities for the petroleum system, in view of the Contractor's responsibility for the operation of these facilities, as defined under Contract No. W-2385-Eng-44.

"(c) Prepare such detailed technical designs as may be required and directed by the Contracting Officer from time to time."

3. The estimate of the cost of the work to be performed under Supplemental Agreement No. 1, as modified by this Change Order, remains unchanged.

4. The Contractor's fixed fee for the work to be performed under Supplemental Agreement No. 1 as herein modified by this Change Order shall remain unchanged and shall constitute and be full and complete compensation for the work to be performed thereunder.

If the foregoing modification of said Supplemental Agreement No. 1 is satisfactory, it is requested that acceptance hereof be noted in the space provided below.

THE UNITED STATES OF AMERICA,
By C. M. CLIFFORD,
Lt. Col., Corps of Engineers,
Contracting Officer.

Accepted:
STANDARD OIL COMPANY OF CALIFORNIA,
J. L. HANNA *Vice President.*
G. M. FOSTER, *Assistant Secretary.*

[SEAL]

EXHIBIT No. 1085-D

Supplemental Agreement No. 2
Contract No. W-2385-Eng.-6.
To-GAO-9-S-43

SUPPLEMENTAL AGREEMENT

To Cost-Plus-A-Fixed-Fee Contract No. W-2385-Eng.-6, dated May 25, 1942, for consulting services in connection with the design and construction of the Norman-Whitehorse pipe line, and necessary facilities in the Dominion of Canada.

Contractor: STANDARD OIL COMPANY OF CALIFORNIA.

Estimated cost, (Supplemental): No Change.

Fixed fee, (Supplemental): No. Change.

Supplemental

Agreement for: Amendment to clarify intention of parties.

Payment: To be paid by Finance Officer, U. S. Army, Edmonton, Alberta, Canada.

This Supplemental Agreement is authorized by Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354, 77th Congress), and Executive Order No. 9001, dated 27 December 1941.

THIS SUPPLEMENTAL AGREEMENT, entered into this 15th day of July 1943 by and between the United States of America (hereinafter referred to as the "Govern-

ment"), represented by the Contracting Officer executing this Supplemental Agreement, and Standard Oil Company of California (hereinafter referred to as the contractor) :

WITNESSETH THAT:

WHEREAS there is now in full force and effect between the parties hereto a certain contract providing for certain consulting services in connection with the design and construction of the Norman-Whitehorse pipe line, and necessary facilities in the Dominion of Canada, bearing date of May 25, 1943, and being identified as Contract No. W-2385-Eng-6 (hereinafter referred to as the "principal contract"); and

WHEREAS said principal contract provides, among other things, in Section 4, of Article VI, that prior to final payment the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of the contract; and

WHEREAS said contract provision above mentioned was designed and incorporated in said principal contract for the purpose of enabling the Contractor to apprise the Government of anticipated claims and to enable the Government to close up records and paper work in connection with such contract, except for those items which were excepted from the operation of the release, and to protect the Government's interests to the extent of matters not excepted by such release; and

WHEREAS said provision was in no way intended to become operative as a bar to making payment to the Contractor for items otherwise reimbursable except for the provisions of such release; and

WHEREAS at the time when final payment might otherwise appropriately be made, third parties may have asserted claims against the Contractor which are not susceptible of being set forth in the release in stated amounts; and at that time it will be impossible for the Contractor to anticipate the amount and character of claims, including claims for wages, overtime, or salaries alleged to be due employees by virtue of the provisions of local, state, or Federal laws or employment agreements; and

WHEREAS it is desired to clarify said principal contract so as to more clearly set forth the understanding of the parties thereto; and

WHEREAS the Secretary of War is authorized by the First War Powers Act, 1941, and Executive Order No. 9001, within the limits of the amounts appropriated therefor, to enter into amendments or modifications of contracts, and by agreement to settle claims under contract, whenever in his judgment the prosecution of the War is thereby facilitated; and

WHEREAS it has been determined by the Secretary of War that in his judgment the prosecution of the War will be facilitated by the modification of the principal contract as hereinafter set out.

Now, THEREFORE, the parties do hereby mutually agree that said principal contract shall be and the same is hereby amended in the following manner:

1. DELETE Section 4, Article VI, of the Principal Contract, and INSERT IN LIEU THEREOF the following:

"1. Prior to final payment and as a condition thereof the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of this contract, other than (a) such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein, or in estimated amounts where the amounts are not susceptible of exact statement, and (b) any claim based upon the responsibility of the Contractor to third parties arising out of the performance of this contract not known to the Contractor at the time of furnishing the release.

"2. Even though the existence or amount thereof shall not be determined until after the furnishing of such release as is described next above, reimbursement to be made for payments made by the Contractor shall include, along with wages and salaries otherwise reimbursable, all additional amounts determined (either by approval of the Contracting Officer or by litigation as hereinafter provided) to be due and payable for overtime compensation and allowances under local, state, or Federal laws in connection with such wages and salaries.

"3. The Contractor shall promptly notify the Contracting Officer of any claims of the type described in paragraph 1 (b) above which are asserted subsequent to the execution of the release.

"4. In the event the Contracting Officer shall determine that the best interests of the Government require that the Contractor initiate or defend litigation in connection with claims of third parties arising out of the per-

formance of this contract, the Contractor will proceed with such litigation in good faith and the costs and expenses of such litigation, including judgments and court costs allowances rendered or awarded in connection with suits for wages, overtime, or salaries, and reasonable attorneys' fees for private counsel when the Government does not furnish Government counsel, shall be reimbursable under this contract."

IN WITNESS WHEREOF the parties hereto have executed this Supplemental Agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA,
By C. M. CLIFFORD,
Lieutenant Colonel, Corps of Engineers, Contracting Officer.
STANDARD OIL COMPANY OF CALIFORNIA,
By J. L. HANNA, *Vice President.*
By G. M. FOSTER, *Associate Secretary.*

Witnesses as to the signature of Contractor:

J. M. EVANS,
225 Bush St., San Francisco, Calif.
W. G. WATSON,
225 Bush St., San Francisco, Calif.

CERTIFICATION

I, A. K. Stevenson, do hereby certify that I am the duly qualified Assistant Secretary of the Corporation named herein as Contractor; that J. L. Hanna and G. M. Foster, who signed this on behalf of the Contractor, were then Vice President and Assistant Secretary, respectively, of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the STANDARD OIL COMPANY OF CALIFORNIA this 15th day of July, 1943.

[CORPORATE SEAL]

A. K. STEVENSON.

EXHIBIT No. 1085-E

Contract No. W-2385-Eng-39

FIXED-FEE OPERATION CONTRACT

WAR DEPARTMENT

Contractor and address: Standard Oil Company of California, 225 Bush Street, San Francisco, California.

Contract for operation for the United States of an oil pipe line from the vicinity of Norman, District of Mackenzie, Northwest Territories, to Whitehorse, Yukon Territory, Canada, and an oil refinery at Whitehorse.

Location: In the Dominion of Canada.

Fixed fee: Maximum of Nine Thousand Five Hundred Dollars (\$9,500.00) per month, payable in United States currency.

Estimated cost exclusive of fixed fee: Two Hundred Twenty-two Thousand Three Hundred Dollars (\$222,300.00) per month, payable in United States currency.

Payment: To be made by Finance Officer, U. S. Army, Edmonton, Alberta, Canada.

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to the following procurement authorities, the available balances of which are sufficient to cover the cost of the same: 8-30729-P430-99A-0905-24.

This contract is authorized by the following laws: Act approved July 2, 1940 (Public Law No. 703, 76th Congress) as amended by the Act approved June 30, 1941 (Public Law 139, 77th Congress), Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354, 77th Congress), and Executive Order No. 9001, dated December 27, 1941.

Approval.

E. REYBOLD,
Major General,
Chief of Engineers.

FIXED-FEE OPERATION CONTRACT

THIS CONTRACT, entered into this 1st day of July, 1943, by and between THE UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this contract, and STANDARD OIL COMPANY OF CALIFORNIA, a corporation organized and existing under the laws of the State of Delaware, hereinafter called the Contractor, WITNESSETH THAT:

WHEREAS, the Government desires to have the Contractor perform the work of operating a pipe line for the transportation of oil from the vicinity of Norman, District of MacKenzie, Canada, to Whitehorse, Yukon Territory, Canada, and of operating an oil refinery at Whitehorse for the manufacture of certain petroleum products, the said pipe line, refinery, and their appurtenances being more particularly described in Article I hereof; and

WHEREAS, the Secretary of War has requested the Standard Oil Company of California to perform the said work; and

WHEREAS, the accomplishment of the above-described work under a cost-plus-a-fixed-fee contract, entered into after negotiations approved by the Secretary of War, and without advertising for proposals, is authorized by law; and

WHEREAS, as a result of such negotiations, the Secretary of War has directed that the Government enter into a cost-plus-a-fixed-fee contract with the Contractor for the accomplishment of the above-described work; and

WHEREAS, this contract is deemed necessary by the War Department to facilitate prosecution of the War;

Now, THEREFORE, the parties hereto do mutually agree as follows:

ARTICLE I—DESCRIPTION OF FACILITIES

1. The pipe line, refinery, and appurtenant structures (hereinafter collectively referred to as the "Facilities"), presently under construction for the Government under contracts with other contractors, will consist of the following principal structures:

(a) A four-inch, above-ground, non-insulated, crude oil pipe line approximately 550 miles long with necessary access roads including bridges, ferries and stream crossings, pumping stations, dwellings, communication system, loading facilities, and appurtenant structures, capable of delivering a minimum of 3,000 barrels per day (approximately 1,000,000 barrels per year) of crude petroleum produced near Norman, District of Mackenzie, Canada (hereinafter referred to as "Norman Area"), to Whitehorse, Yukon Territory, Canada (hereinafter referred to as "Whitehorse").

(b) Terminal storage facilities at Norman Area with a minimum capacity of approximately 200,000 barrels of crude petroleum and other petroleum products produced at Norman Area.

(c) Terminal storage facilities at Whitehorse with a minimum capacity of approximately 300,000 barrels of crude petroleum and other petroleum products obtained from the Norman Area.

(d) A suitable refinery under the unusual conditions existing to produce 100-octane number aviation gasoline and other petroleum products to the extent practicable from the crude petroleum obtained at Norman Area with a minimum capacity of approximately 3,000 barrels per day (approximately 1,000,000 barrels per year).

(e) Oil storage facilities for the several petroleum products to be produced by the refinery at Whitehorse with a minimum total capacity of 300,000 barrels.

(f) Such additional non-manufacturing facilities necessary for the successful operation and use of the pipe line, refinery, and appurtenant structures.

ARTICLE II—STATEMENT OF WORK

1. The Contractor shall, during the term of this contract, furnish the labor, materials, tools, machinery, equipment, facilities, food, supplies and services, not furnished by the Government, and do all things necessary for the operation of the Facilities in accordance with such requirements and specifications as the Contracting Officer may from time to time prescribe, subject to the limitations imposed by the nature of the Facilities and the quantity and characteristics of the petroleum stocks to be handled.

2. Where the terms "operate" or "operation" are used herein with respect to the Facilities, these terms shall be understood to embrace the work of management, supervision, training of personnel, testing, inspection, operation, main-

tenance, repair, accounting, and all other functions necessary to the accomplishment of the purposes stated in Paragraph 1 of this Article II.

3. The Contractor shall, to the best of its ability, operate the Facilities in the best and most workmanlike manner with qualified, careful, and efficient workers, and in strict conformity with the best standard practices, unless otherwise directed by the Government. The work to be done by the Contractor shall include, but shall not be limited to, the following:

(a) Not less than four months prior to the time when the Facilities, or a portion of said Facilities, are ready for operation, the Contracting Officer shall notify the Contractor in writing of the probable date of commencement of operations. Upon receipt of such notice, the Contractor shall proceed to hire or select the key personnel necessary for the operation of the Facilities, including the personnel with special skills required for the operation of the refinery, and when such personnel is available shall proceed to train such personnel in the duties and functions of their respective positions, at the Contractor's plants or elsewhere, in order that they will have obtained experience with the processes and operations involved in the Facilities.

(b) During the period of construction of the Facilities, the Contractor may, in its discretion, send its principal supervisory personnel to the site to inspect the Facilities in order to make plans for the required operations. The Contracting Officer shall currently inform the Contractor of any material change in the expected date of commencement of operation of the Facilities, or any portion thereof, and reasonably in advance of said date, the Contractor shall assemble at the Facilities its operating force, ready to begin operation upon receipt by the Contractor of the notice prescribed in Paragraph 3 (c) of this Article II.

(c) When the Facilities, or a portion of such Facilities, are ready for commencement of operation, the Contracting Officer shall so notify the Contractor in writing, and the Contractor shall thereupon assume management control and shall operate the Facilities during the term of this contract.

(d) Upon receipt of the notice prescribed in Paragraph 3 (c) of this Article II, the Contractor shall, in cooperation with one or more representatives of the Contracting Officer, conduct necessary trial runs and tests of the Facilities. Any defects revealed thereby shall be corrected by the Government, or by the Contractor at the expense of the Government if the Contracting Officer so directs.

(e) The Contractor shall furnish from its own staff or shall select, hire, and train competent personnel necessary to operate the Facilities. Such personnel shall be the employees of the Contractor, and the Contractor shall pay the wages of such employees, and in accordance with its established practices with respect to employees relations generally, shall provide in behalf of such employees, in accordance with the terms of the contracts of employment specified in this sub-paragraph (e), its usual system of vacations, sickness and disability benefits, pensions, annuities, insurance and other similar allowances, usually designated as "employee benefits." The Contractor, or any wholly-owned subsidiary of the Contractor performing work as a subcontractor under Paragraph 4 (b) of Article VIII hereof, shall enter into individual contracts of employment with employees engaged in operation of the Facilities. The said Employment contract as approved by the Contracting Officer is hereby made a part hereof and is attached as Exhibit "A."

(f) The Contractor shall provide necessary medical, hospital, and recreational facilities for employees engaged in operation of the Facilities, unless said facilities are provided by the Government for the use of said employees; and, likewise, shall provide educational equipment and services at the site of the Facilities for the minor children of such employees; and shall pay necessary living, traveling, and transportation expenses for said employees and their families as prescribed in the approved employment contract, Exhibit "A" hereof.

(g) The Contractor shall keep the Facilities in a good state of repair, ordinary wear and tear and damage or destruction resulting from causes beyond the Contractor's control excepted. If extensive repairs or replacements beyond the capacity of the Contractor's normal maintenance forces are required, the Contractor may, subject to the approval of the Contracting Officer, employ the services of a competent contractor to perform such work.

(h) The Contractor shall purchase and cause to be delivered to the Facilities all materials, fuel, food, supplies, tools and equipment necessary for the operation of the Facilities. The Government shall assist the Contractor in securing priorities and/or allocation orders necessary for the purchase and delivery

of the said material, fuel, food, supplies, tools, and equipment. In the event, however, that the Contractor shall, in spite of diligent efforts, be unable to furnish or arrange adequate transportation for said material, fuel, food, supplies, tools, and equipment to the site of the Facilities as required for satisfactory operation, such transportation shall be furnished by the Government.

(i) The Contractor shall provide as required to promote efficient operation of the Facilities the services of its executive, technical, laboratory, and other staff forces, normally located at the Contractor's home office or regularly established branch offices, or those of its subsidiaries, and the services of its laboratory facilities, and shall provide the services of its purchasing and accounting personnel as needed to assist the Contractor's job-site office.

(j) When, in the judgment of the Contractor, the complexity and nature of problems of operation of the Facilities are such as to require expert technical assistance, or services or advice in connection with special phases of the work, such as physical and chemical analyses, corrosion studies, or other problems of a highly technical character, the Contractor may employ, by contract or otherwise, with the written consent of the Contracting Officer, obtained in advance, such supplemental professional services as are necessary for the proper performance of this contract. Traveling expenses will be allowed in accordance with standard Government Travel Regulations.

(k) The Contractor shall maintain proper records and accounts in accordance with the provisions of Article VII hereof.

(l) The Government shall obtain from Dominion, Territorial, Provincial and local authorities permits and approvals necessary for the operation of the Facilities. The Contractor shall endeavor to secure such of these permits and approvals as the Contracting Officer, upon written notice, may request the Contractor to obtain.

(m) The Contractor shall, as soon as practicable after the end of each calendar month, render to the Government a report of operations during such month, including therein information concerning pipe line receipts, deliveries, losses, and inventories of oil, and refinery receipts, run, output, shipments and inventories, together with such other information as the Contracting Officer may require; and shall make such other reports with respect to the work done under this contract as the Contracting Officer may require.

(n) In the event that the operation of the refinery at Whitehorse results in the production of gas in quantities in excess of the requirements of the refinery, the Contractor shall endeavor to dispose of such gas to the best advantage of the operations hereunder. Such disposal shall be made only with the prior written authorization of the Contracting Officer; provided, however, that excess gas produced during temporary peak periods in quantities exceeding the disposal so authorized shall be disposed of as the Contractor may determine.

4. In the event that the operation of the Facilities involves the use of patented inventions owned by third persons it is understood and agreed that the Contractor will endeavor to secure licenses under all such patents, either royalty-free or, with such assistance on the part of the Government as may be required, upon the best terms possible; and the Contractor will be reimbursed by the Government for expenditures connected therewith.

5. The Contractor hereby grants to the Government a perpetual royalty-free license to practice in the Facilities, but not elsewhere, and then only for purposes of National Defense, all patented inventions, secret processes, and technical information of the Contractor which may be incorporated by the Government in the construction of the Facilities or by the Contractor in the operation of the Facilities. This license shall not be assignable to any transferee of the Facilities or any part thereof, and the Contractor reserves the privilege of asserting any and all legal rights in and to such patented inventions, secret processes, and technical information against any person, firm or corporation; provided, however, that the provisions of this Article shall not supersede or modify any existing agreements between the contractor and the Government applying to any such inventions, processes, or information.

6. The Government shall furnish and shall own all oil to be transported and processed in the Facilities, and shall own all products produced by the Facilities. The Contractor shall receive such oil in the field in the vicinity of Norman at such points as the Contracting Officer may designate.

7. Title of all materials, tools, machinery, equipment and supplies procured in the United States for which the Contractor shall be entitled to reimbursement under Article IV shall vest in the Government at the point or points of procurement in the United States, and the Contracting Officer shall inspect and accept

such items at such point. Title to all materials, tools, machinery, equipment and supplies procured in the Dominion of Canada for which the Contractor shall be entitled to reimbursement under Article IV shall vest in the Government at such point or points as the Contracting Officer may designate in writing, provided that the right of final inspection and acceptance or rejection of such materials, tools, machinery, equipment and supplies at such place or places as he may designate in writing is reserved to the Contracting Officer; provided further that, upon such final inspection, the Contractor shall be given written notice of acceptance or rejection as the case may be. In the event of rejection the Contractor shall be responsible for the removal of the rejected material within a reasonable time.

8. The Government reserves the right to furnish any materials, equipment, tools, or services, including communication services necessary for the operation of the Facilities. The Contractor shall cause all equipment and tools and other non-expendable items to which title is vested in the Government, to be suitably marked with an identifying mark or symbol indicating that such items are the property of the United States. The Contractor shall maintain at all times, in a manner satisfactory to the Contracting Officer, records showing the disposition and/or use of all equipment, tools, and materials purchased for the work, and for which it has been reimbursed by the Government or which have been furnished by the Government. Upon the completion of this contract or upon demand, the Contractor shall return such equipment, tools and unused materials to the place designated by the Contracting Officer. In respect of such return of said equipment, tools, and unused materials, due allowance shall be made for normal loss, breakage, and destruction, and the Contractor shall not be liable to the Government therefor, except as provided in Paragraph 1 (b) of Article VIII hereof.

9. If the Contractor fails to pay for labor, materials, or other charges, the Government reserves the right to pay directly to the persons concerned all sums due from the Contractor for labor, materials, or other charges.

10. (a) The Government reserves the right to pay directly to common carriers, any or all freight or transportation charges on equipment, tools, materials and supplies.

(b) The Government reserves the right to pay direct for all telegram, telephone communications (including teletype and facsimile when authorized by the Contracting Officer to be installed), cablegrams, radio-grams, and similar messages that may be sent by the Contractor pertaining directly to the contract for work to be done or materials to be furnished thereunder, and the Contractor is hereby designated as an agent of the Government for the purpose of causing to be transmitted any such messages.

ARTICLE III—ESTIMATE OF COST

It is estimated that the cost of operation of the Facilities will be Two Hundred Twenty-Two Thousand and Three Hundred Dollars (\$222,300.00) per month during the term of this contract, exclusive of the "Fixed-Fee" specified in Article IV hereof, and exclusive of the cost of correction by the Contractor, if required, of defects, as specified in Paragraph 3 (d) of Article II hereof. It is expressly understood that neither the Government nor the Contractor guarantees the correctness of the above estimated cost of Two Hundred Twenty-Two Thousand Three Hundred Dollars (\$222,300.00) per month. The said estimated cost is based upon an estimate agreed to by both the Government and the Contractor, a copy of which is on file in the offices of the Chief of Engineers and the Contracting Officer.

ARTICLE IV—COST OF THE WORK

In consideration of its undertaking under this contract the Contractor shall receive reimbursement for expenditures, and a "fixed-fee," as follows:

1. *Reimbursement for Contractor's Expenditures.*—The Contractor shall be reimbursed in the manner hereinafter described for its actual expenditures in the performance of the work included in the following items; and which expenditures have been approved or ratified by the Contracting Officer:

(a) Salaries and wages paid to personnel directly engaged in the operation of the Facilities. In case the full time of any employee of the Contractor is not applied to the work his salary shall be included in this item only in proportion to the actual time applied thereto. No person shall be assigned to service by the Contractor as Superintendent of operations, Chief Engineer, Chief Purchasing Agent, Chief Accountant and/or similar position in the Contractor's organization until there has been submitted to and approved by the Contracting Officer a state-

ment of the qualifications, experience and salary of the person proposed for such assignment. The payment of any excess salary over such scheduled amounts shown in the approved salary schedule agreed to at the time of negotiation of this contract shall not be reimbursable unless and until the Contracting Officer has so approved in writing.

(b) Losses and expenses, not compensated by insurance or otherwise (including settlements made with the written consent of the Contracting Officer), actually sustained by the Contractor in connection with the work and found and certified by the Contracting Officer to be just and reasonable, unless reimbursement therefor is expressly prohibited by the terms of this contract.

(c) The cost of the Contractor of "employee benefits" and living, traveling, transportation, and other expenses incurred pursuant to the approved Employment Contract, Exhibit "A" hereof.

(d) Salaries or wages paid by the Contractor to its technical, purchasing, accounting, laboratory, and other staff personnel while performing work hereunder pursuant to Paragraph 3 (i) of Article II hereof, and the cost of laboratory supplies and office supplies used in the performance of such work.

(e) Amounts paid by the Contractor for material, tools, machinery, equipment, facilities, supplies, services, fuel, water, light, heat, power and any other service or utility furnished to or with respect to the Facilities, together with any applicable taxes, duties, royalties, transportation charges or other costs necessarily incidental thereto, subject to approval of Contracting Officer.

(f) Amounts paid by the Contractor to contractors employed by it pursuant to the provisions of this contract and for consultant and/or professional services obtained pursuant to Paragraph 3 (j) of Article II hereof. Subcontractors, as defined in Paragraph 4 (a) of Article VIII hereof, will be reimbursed by the Government direct, and not by the prime contractor, when work performed by the subcontractor is certified by the prime contractor.

(g) Cost to the Contractor for operating and maintaining offices, commissary, medical, hospital, recreational and educational facilities as provided in Article II hereof, including minor expenses such as expressage and postage.

(h) Premiums on such bonds and insurance policies as the Contracting Officer may require for the protection of the Government; and the cost of all public liability, employer's liability, workmen's compensation, property damage, fidelity, fire, theft, burglary, and other insurance that the Contracting Officer may approve as reasonably necessary for the protection of the Contractor.

(i) The cost of repairing, reconstructing, and replacing any of the Facilities destroyed or damaged, and not covered by insurance, but expenditures under this item must have the written authorization of the Contracting Officer in advance; and the cost to the Contractor of correction of defects in the Facilities, as provided in Paragraph 3 (d) of Article II hereof.

(j) Payments from its own funds made by the Contractor under the Social Security Act, and any disbursements required by domestic or foreign law, which the Contractor may be required on account of this contract to pay on or for any plant, equipment, process, organization, materials, supplies, or personnel, and, if approved in writing by the Contracting Officer in advance, permit and license fees and royalties on patents used. In the event the Contractor, or a wholly-owned subsidiary performing work as a subcontractor hereunder, is required to pay any income, profits or license tax under the laws of the Dominion of Canada or its political subdivisions on account of work under this Contract, the amount of such tax shall be a reimbursable item hereunder.

In the event that the Contractor's employees who are United States citizens are required to pay income tax under the laws of the Dominion of Canada or its political subdivisions, Contractor shall reimburse such employees for a portion of said taxes pursuant to the terms of the Employment Contract, Exhibit "A" hereof, and the cost to the Contractor of such reimbursement shall be a reimbursable item under this contract.

(k) Payments from its own funds made by the Contractor for any applicable taxes, fees, or charges which the Contractor may be required on account of this contract to pay on or for any plant, equipment, process, organization, materials, supplies, or personnel; and permit and license fees, and royalties on patents used, subject, however, to the provisions of Paragraphs 4 and 5 of Article II hereof: provided that all such charges shall be submitted to the Contracting Officer for approval.

(l) Costs incurred by the Contractor incident to termination of this contract including, but without being restricted to, costs necessary for placing the Facilities in condition satisfactory to the Contracting Officer after cessation of operi-

tions, cost resulting from commitments made for materials and supplies on order prior to receipt by the Contractor of notification of termination, and necessary costs incident to release of the Contractor's employees and their return to home stations, all subject to the provisions of Article IX hereof.

(m) Such other items not expressly excluded by other provisions of this contract as should, in the opinion of the Contracting Officer, be included in the cost of the work. When such an item is allowed by the Contracting Officer, it shall be specifically certified as being allowed under this subsection.

(n) If employees or representatives of the Contractor be required to travel, the Government will reimburse the Contractor for the transportation including Pullman or special service where necessary, and will allow for such travel Six Dollars (\$6.00) per day in lieu of all other expenses within the continental limits of the United States, and Seven Dollars (\$7.00) in Alaska and Canada. Transportation by automobile on such required travel shall be reimbursed at the rate of Five Cents (\$.05) per mile as representing the actual cost of such transportation.

All travel shall be either authorized or approved in writing by the Contracting Officer. Should the Contractor, or any representative thereof, remain in a travel status in excess of six (6) days at any one time, not including the time consumed in travel, the cost for such excess travel status shall be at the expense of the Contractor, unless otherwise ordered in writing by the Contracting Officer.

(o) No salaries of the Contractor's executive officers, no fees of its attorneys, no part of the expense incurred in conducting the Contractor's main office or regularly established branch offices, and no overhead of any kind shall be included in the cost of the work except that direct expenses of officers or employees of the Contractor and of its subsidiaries, and of additional operators retained or employed by the Contractor in connection with the operation of the Facilities may be so included to the extent approved by the Contracting Officer.

(p) No interest on capital employed by the Contractor or on borrowed money shall be included in the cost of the work.

(q) The Contractor shall, to the extent of its ability, take all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and bonifications, and when unable to take advantage of such benefits it shall promptly notify the Contracting Officer to that effect and the reason therefor. In determining the actual net cost of articles and materials of every kind required lost through fault of the Government, shall not be deducted from gross costs. thereof all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and bonifications which have accrued to the benefit of the Contractor or would have so accrued except for the fault or neglect of the Contractor. Such benefits lost through no fault or neglect on the part of the Contractor, or lost through fault of the Government, shall not be deducted from gross costs.

(r) All revenue received by the Contractor from operation of the Facilities or from rebates, discounts, refunds, etc., shall be accounted for by the Contractor and applied in reduction of the cost of operation of the Facilities. In the event, however, that the Contractor should purchase any products from the Government pursuant to Article XXII hereof, any profit or loss accruing to the Contractor as a result of such purchase shall not be included in the accounts relating to operation of the Facilities.

2. *Fixed fee.*—The Contractor shall be paid in the manner hereinafter described a fixed-fee in an amount per month determined as follows:

(a) It being contemplated by the Government and the Contractor that the Facilities will be placed in operation in two successive stages as construction of two portions of the Facilities is completed, it is agreed that the fixed-fee shall be paid during the First Stage of operation, and during the Second Stage, in the respective amounts stated in subparagraph (b) of this paragraph 2 of Article IV. The respective periods of the said two stages are hereby defined as follows:

(A) The First Stage shall consist of the period beginning with date of receipt by the Contractor of the notice from the Government prescribed under Paragraph 3 (c) of Article II hereof, or with the date oil first moves toward Whitehorse from the most easterly main pumping station of the Facilities on the Norman-Whitehorse pipe line after all main line pipe has been laid in said line, whichever date is the earlier, and ending with the beginning of the Second Stage of operation.

(B) The Second Stage shall consist of the period beginning with the date of the first trial operation of the gas concentration unit, or the alkylolation

unit, or the isomeration unit, at the Whitehorse refinery, whichever date is earliest, and ending with the termination of this contract.

(b) During each of the aforesaid two stages of operation, the fixed-fee payable shall be as follows:

(A) During the First Stage, Seven Thousand Dollars (\$7,000.00) per month.

(B) During the Second Stage, Nine Thousand Five Hundred Dollars (\$9,500.00) per month.

(c) The said fixed-fee shall constitute complete compensation for the Contractor's services including overhead expenses, except as otherwise specifically provided in Paragraph 1 (o) of this Article IV.

ARTICLE V—CHANGES IN SCOPE OF PROJECT

The Contracting Officer may, without notice to the sureties, if any, at any time, by a written order, issue additional instructions, require additional work or services, or direct omission of work or services covered by this contract. If such changes cause a material increase or decrease in the amount or character of the work to be done under this contract, an equitable adjustment in the Contractor's fixed-fee will be made as may be agreed upon between the Contractor and the Contracting Officer at the time of such change, and the contract shall be modified in writing accordingly.

ARTICLE VI—PAYMENTS

1. After the assumption of management control by the Contractor as specified in Paragraph 3 (c) of Article II hereof, the Government shall, upon written request of the Contractor to the Contracting Officer, advance to the Contractor a sum which shall be mutually agreed upon but not to exceed 30% of the estimated annual cost of operation exclusive of the fixed-fee, based upon the estimated monthly cost of operation given in Article III hereof, as a "revolving fund" in amount consistent with the magnitude of the operating cost hereunder, which sum shall be used by the Contractor exclusively for the payment of the cost of operating the Facilities in accordance with this contract. If said advance is made by the Government to the Contractor, it shall be handled and accounted for by the Contractor in accordance with such terms and conditions as the Government may prescribe at the time of making said advance.

2. The Government will currently reimburse the Contractor for expenditures made in accordance with Article IV hereof upon certification to and verification by the Contracting Officer of the original signed payrolls for labor, the receipted vouchers for materials and such other documents as the Contracting Officer may require. Generally, reimbursement will be made monthly but may be made at more frequent intervals if the conditions so warrant.

3. As soon as practicable after the last day of each calendar month in the period during which the Contractor's fixed-fee is payable under the provisions of Paragraph 2 of Article IV hereof, the Contractor shall render to the Contracting Officer a statement of the amount of the fixed-fee accrued during such month. Upon the Contracting Officer's verification of the said statement, the said verification to be made promptly, the Government shall pay promptly to the Contractor ninety per cent (90%) of said amount. The remaining ten per cent (10%) accrued and unpaid in each calendar year during the term of this contract shall be paid by the Government to the Contractor promptly after receipt and verification by the Contracting Officer of the Contractor's statement thereof to be rendered as soon as practicable after the close of each such year.

4. Within ninety days after completion of all work done by the Contractor pursuant to termination of this contract, the Contractor shall render to the Contracting Officer a final statement of expenditures made in accordance with Article IV hereof since the last preceding monthly statement, the said expenditures to be duly certified and supported by the aforesaid payrolls, vouchers and other documents. The said final statement shall also include the total amount of the fixed-fee prescribed in Paragraph 2 of Article IV hereof less payments thereof previously made by the Government to the Contractor; and shall also include credit to the Government in the amount of the sum, if any, advanced to the Contractor pursuant to Paragraph 1 of this Article VI. Upon the Contracting Officer's verification of the said final statement, the said verification to be made promptly, and

subject to the provisions of Paragraph 4 of Article IX hereof, the balance payable in accordance with said final statement shall be paid promptly by the Government to the Contractor, or by the Contractor to the Government, as the case may be.

5. The statements rendered to the Government by the Contractor as prescribed in this Article VI shall be in terms of United States dollars. Expenditures included in such statements made in Canadian dollars shall be converted to United States dollars at the rate of exchange effective at the time such expenditures were made. The said rate of exchange shall be that established by the Foreign Exchange Control Board of the Dominion of Canada or by such competent authority as may be established from time to time for the purpose of fixing such rate of exchange. All payments by the Government to the Contractor hereunder shall be in United States dollars and shall be paid to the Contractor at its main office in San Francisco, California, or elsewhere as the Contractor may direct.

ARTICLE VII—RECORDS AND ACCOUNTS—INSPECTION AND AUDIT

1. The Contractor shall keep records and books of account, showing the actual cost to it of all items of labor, materials, equipment, supplies, services, and other expenditures of whatever nature for which reimbursement is authorized under the provisions of this contract. The system of accounting to be employed by the Contractor shall be such as is satisfactory to the Contracting Officer.

2. The Contracting Officer shall at all times be afforded proper facilities for inspection of the work and shall at all times have access to the premises, work and materials, to all books, records, correspondence, instructions, plans, drawings, receipts, vouchers, and memoranda of every description of the Contractor pertaining to said work except such documents as have been submitted in support of reimbursement vouchers; and the Contractor shall preserve such papers without additional compensation therefor, for a period of three (3) years after completion or termination of this contract.

3. Any duly authorized representative of the Contractor shall be accorded the privilege of examining the books, records, and papers of the Contracting Officer relating to the cost of the work for the purpose of checking and verifying such cost.

4. In order to avoid so far as possible duplication in accounting and auditing functions performed by the Contractor and the Government, it is agreed that the following accounting and auditing functions shall be performed by the Government exclusively:

(a) Audit of original payrolls of the Contractor (or such portions thereof as are applicable), where such payrolls are prepared by the Contractor. (Where payrolls are prepared by the Government, the audit thereof by the Government will be concurrent with such preparation.)

(b) Such other accounting and auditing functions as may be effectively performed by Government employees, and to which the Contracting Officer and the Contractor may mutually agree in writing.

ARTICLE VIII—SPECIAL REQUIREMENTS

1. While it is the purpose and intent of the Contractor to exercise the same degree of care (unless otherwise directed by the Government) in performing the work provided for in this contract as it would if the Facilities to be operated belonged to the Contractor, nevertheless, because of the abnormal conditions existing, it is agreed by and between the parties hereto as follows, to wit:

(a) All work under this contract is to be performed at the expense of the Government, and the Government shall indemnify and hold the Contractor harmless against any loss, expense (including expense of litigation) or damage (including personal injuries and deaths of persons and damage to property) of any kind whatsoever arising out of or connected with the performance of the work, unless such loss, expense or damage shall be shown by the Government to have been caused directly by and through the wilful neglect of, and/or bad faith and wilful misconduct on the part of some officer or officers of the Contractor, acting within the scope of his or their authority and employment.

(b) The Contractor shall not be liable to the Government in any amount whatever for failure or delay in the performance by it hereunder, or for any damage to or destruction of the Facilities or other property of the Government in the possession or control of the Contractor in connection with this contract, or for any injury to or death of persons or damage to property arising out of

or in connection with the work hereunder, no matter what the cause thereof may be or may seem to be, unless same shall be shown by the Government to have been caused directly by and through the wilful neglect of, and/or bad faith or wilful misconduct on the part of some officer, or officers of the Contractor acting within the scope of his or their authority and employment.

2. The Contractor shall procure, if obtainable, and thereafter maintain such bonds and insurance in such forms and in such amounts, and for such periods of time as the Contracting Officer may approve or require.

3. The Contractor shall reduce to writing, unless this provision is waived in writing by the Contracting Officer, every contract in excess of Five Thousand Dollars (\$5,000.00) made by it for the purpose of the work hereunder for services, materials, supplies, equipment, or for the use thereof; insert therein a provision that such contract is assignable to the Government; make all such contracts in its own name, and not bind or purport to bind the Government or the Contracting Officer thereunder. No purchase in excess of Five Thousand Dollars (\$5,000.00) shall be made or placed without the prior approval of the Contracting Officer.

4. (a) Except as provided in subsection (b) of this Paragraph 4, the Contractor shall enter into no subcontract for any portion of the work, except in the form prescribed by the Chief of Engineers, nor without the written approval of the Contracting Officer. Subcontracts are defined as contracts entered into by the Contractor with others which involve the performance, wholly or in part at the site of the Facilities, of some part of the work described in Article II hereof; provided, however, that a contract for the furnishing of standard or commercial articles or raw materials shall not be considered as a subcontract.

(b) Notwithstanding the generality of the foregoing, the Contractor is hereby authorized to enter into one or more subcontracts for the performance of any part or all of the work under this contract with its wholly-owned subsidiary, Standard Oil Company, a corporation organized and existing under the laws of the Territory of Alaska, or with any other wholly-owned subsidiary of the Contractor. In the event that the Contractor enters into such subcontract, it is hereby agreed that the amount of the fixed-fee to be paid to the Contractor by the Government as specified in Paragraph 2 of Article IV hereof shall not be changed because of such subcontract.

5. At all times during the period of the Contractor's operation of the Facilities during the term of this contract, the Contractor shall keep at the Facilities a duly appointed and qualified representative who shall receive and execute on the part of the Contractor such notices, directives, and instructions as the Contracting Officer may give.

6. In the performance of work hereunder the Contractor shall comply with, and give all stipulations and representations required by applicable federal laws and shall require such compliance, representations and stipulations with respect to any contract entered into by it with others hereunder as may be required by applicable federal laws.

7. In the performance of work hereunder, the Contractor shall comply with all applicable laws of the Dominion of Canada, the Province of British Columbia and Yukon Territory, and municipal and local laws and the rules, orders, regulations and requirements of any departments and bureaus thereof and all applicable local ordinances and regulations.

8. When the performance of work hereunder requires United States citizens who are employees of the Contractor, or of subcontractors, to obtain admission to Canada, or requires any such employees who are Canadian citizens to obtain admission to the United States, the Government shall, upon request of the Contractor, endeavor to arrange for such admissions.

9. Should the continued employment, under this contract, of any person in the Contractor's organization be deemed by the Contracting Officer to be prejudicial to the interests of the Government, that person shall be immediately removed from the work. The Contractor shall make every reasonable effort in the selection of its employees and in the prosecution of the work under this contract to safeguard drawings, specifications, and reports and to prevent the theft or unauthorized use of the same.

10. The Contractor shall at all times use its best efforts in all acts hereunder to protect and subserve the interest of the Government.

ARTICLE IX—TERM OF CONTRACT

1. This contract unless sooner terminated as hereinafter provided or unless extended by mutual agreement of the Government and the Contractor shall remain in effect for a term which begins on the date hereof and extends six months beyond the termination of the present war emergency as determined by proclamation of the President of the United States, but in no event shall the said term extend beyond October 1, 1961.

2. Should the Contractor at any time refuse, neglect, or fail to prosecute the work with promptness and diligence, or default in the performance of any of the agreements herein contained, or should conditions arise which make it advisable or necessary in the interest of the Government to cease operation of the Facilities, the Government may terminate this contract by a notice in writing from the Contracting Officer to the Contractor, such termination shall be effective in the manner and upon the date specified in said notice, and shall be without prejudice to any claim which the Government may have against the Contractor. Upon receipt of such notice the Contractor shall, unless the notice directs otherwise, immediately discontinue all work and the placing of all orders for materials, facilities, and supplies in connection with the performance of this contract and shall proceed to cancel promptly all existing orders and terminate work under all subcontracts in so far as such orders and/or such work are chargeable to this contract.

3. If this contract is terminated for the fault of the Contractor, the Contracting Officer may enter upon the premises and take possession, for the purpose of completing the work contemplated by this contract, of all materials, tools, equipment, and appliances and all options, privileges, and rights, and may complete or employ any other person or persons to complete said work. Delay or failure to perform shall not be considered the fault of the Contractor when the Contractor's performance has been prevented or hindered by acts of God or of the public enemy, acts of the Government (including but not restricted to any preference, priority, or allocation order), fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unavailability of labor, materials or transportation facilities, unusually severe weather, or failure or delay of a subcontractor due to such causes.

4. Upon the termination of this contract as hereinbefore provided, full and complete settlement of all claims of the Contractor arising out of this contract shall be made as follows:

(a) The Government shall assume and become liable for all obligations, commitments, and claims that the Contractor may have theretofore in good faith undertaken or incurred in connection with said work, the cost of which would be reimbursable in accordance with the provisions of this contract; and the Contractor shall, as a condition of receiving the payments mentioned in this Article, execute and deliver all such papers and take all such steps as the Contracting Officer may require for the purpose of fully vesting in the Government the rights and benefits of the Contractor under such obligations or commitments.

(b) The Government shall reimburse the Contractor for all expenditures made in accordance with Article IV hereof and not previously reimbursed.

(c) The Government shall reimburse the Contractor for such further expenditures after the date of termination for the protection of Government property, and for the Contractor's accounting services in connection with the settlement of this contract as are required or approved by the Contracting Officer.

(d) The obligation of the Government to make any of the payments required by this Article, shall be subject to any unsettled claims in connection with this contract which the Government may have against the Contractor.

5. Prior to final payment and as a condition thereof the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of this contract, other than (a) such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein, or in estimated amounts where the amounts are not susceptible of exact statement, and (b) any claim based upon the responsibility of the Contractor to third parties arising out of the performance of this contract not known to the Contractor at the time of furnishing the release.

6. Even though the existence or amount thereof shall not be determined until after the furnishing of such release as is described next above, reimbursement to be made for payments made by the Contractor shall include, along with wages and salaries otherwise reimbursable, all additional amounts determined (either by approval of the Contracting Officer or by litigation as hereinafter provided) to be due and payable for overtime compensation and allowances under local, state or Federal laws in connection with such wages and salaries.

7. The Contractor shall promptly notify the Contracting Officer of any claims of the type described in paragraph 5 (b) above which are asserted subsequent to the execution of the release.

8. In the event the Contracting Officer shall determine that the best interests of the Government require that the Contractor initiate or defend litigation in connection with claims of third parties arising out of the performance of this contract, the Contractor will proceed with such litigation in good faith and the costs and expenses of such litigation, including judgments and court costs, allowances rendered or awarded in connection with suits for wages, overtime or salaries, and reasonable attorneys' fees for private counsel when the Government does not furnish Government counsel, shall be reimbursable under this contract.

ARTICLE X—CONTRACTING OFFICER'S DECISIONS AND DISPUTES

The extent and character of the work to be done by the Contractor shall be subject to the general supervision, direction, control and approval of the Contracting Officer to whom the Contractor shall report and be responsible. All disputes arising under this contract shall be decided by the Contracting Officer, whose decision shall be in writing, subject to written appeal by the Contractor within 30 days to the Chief of Branch concerned or his duly authorized representative, whose decision shall be final and conclusive upon the parties hereto, when the amount involved is \$15,000 or less. When the amount involved is more than \$15,000, the decision of the Chief of Branch shall be subject to written appeal within 30 days by the Contractor to the Secretary of War or his duly authorized representative, whose decision shall be final and conclusive upon the parties hereto. In the meantime the Contractor shall diligently proceed with the work as directed.

ARTICLE XI—CONVICT LABOR

The Contractor shall not employ, except with the approval of the Contracting Officer, any person undergoing sentence of imprisonment at hard labor.

ARTICLE XII—LABOR

1. Payments to its employees by the Contractor shall be in accordance with existing regulations. The Contractor will pay directly upon the site of the work, not less often than twice a month unless otherwise authorized by the Contracting Officer, the full amounts accrued at the time of payment, less any tax deductions required by law computed at wage rates not less than those approved by the Contracting Officer for the work herein specified.

2. Anti-Discrimination:

(a) The Contractor in performing the work required by this contract shall not discriminate against any worker because of race, creed, color, or national origin.

(b) The Contractor agrees that the provision of subsection (a) above will also be inserted in all of its subcontracts. For the purpose of this article, a subcontract is defined as any contract entered into by the Contractor with any individual, partnership, association, corporation, estate, or trust, or other business enterprise or other legal entity, for a specific part of the work to be performed in connection with the supplied or services furnished under this contract; provided, however, that a contract for the furnishing of standard or commercial articles or raw material shall not be considered as a subcontract.

ARTICLE XIII—INSURANCE

1. During the life of this contract, Workmen's Compensation and Public Liability Insurance covering the operation and maintenance of the facilities of this contract, as described in Article I hereof, shall be in accordance with all applicable State, provincial and Dominion Workmen's Compensation Laws, the Act (U. S.) entitled "Longshoremen's and Harbor Workers' Compensation Act" (44 Stat. 1424) as amended, and as the same was amended by Public Law 208, 77th Congress, approved August 16, 1941, and the War Department Insurance Rating Plan.

2. All losses and expenses, not compensated by the above described laws and plan or by other forms of insurance which have been approved by the Contracting Officer, shall be reimbursed to the Contractor in accordance with Paragraph 1, subparagraph (b), Article IV hereof.

ARTICLE XIV—ACCIDENT PREVENTION

In order to protect the life and health of its employees in the performance of this contract, the Contractor will comply with all pertinent provisions of the "Safety Requirements in Excavation—Building—Construction" approved by Chief of Engineers December 16, 1941 (a copy of which is on file in the Office of the Contracting Officer), and as may be amended, and will take or cause to be taken such additional measures as the Contracting Officer may determine to be reasonably necessary for this purpose. The Contractor will maintain an accurate record of, and will report to the Contracting Officer in the manner and on the forms prescribed by the Contracting Officer, all cases of death, occupational disease, and traumatic injury arising out of or in the course of employment on work under this contract.

ARTICLE XV—OFFICIALS NOT TO BENEFIT

No Member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE XVI—COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that it has not employed any person to solicit or secure this contract upon any agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give the Government the right to terminate the contract, or in its discretion, to deduct from payments due the Contractor the amount of such commission, percentage, brokerage, or contingent fee. This warranty shall not apply to commissions payable by the Contractor upon contracts or sales secured or made through bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

ARTICLE XVII—CONTRACTOR'S ORGANIZATION AND METHODS

Upon the execution of this contract, the Contractor shall submit to the Contracting Officer a chart showing in general the executive and administrative organization, duties and personnel to be employed in connection with the work under the contract; the data so furnished shall be supplemented as additional information becomes available.

ARTICLE XVIII—ASSIGNMENT OF CLAIMS

Neither this contract, nor any interest therein, or claim thereunder, shall be assigned or transferred by the Contractor to any party or parties.

ARTICLE XIX—NOTICES

1. Any notice required to be given to the Government under the provisions of this contract shall be addressed to the Division Engineer, Northwest Division, United States Engineer Office, Edmonton, Alberta, Canada.

2. Any notice required to be given to the Contractor under the provisions of this contract shall be addressed to Standard Oil Company of California, 225 Bush Street, San Francisco, 20, California.

ARTICLE XX—PURCHASE OF PRODUCTS

The Contractor shall have the right to purchase from the Government any crude oil or petroleum products handled in the Facilities in excess of the Government's requirements therefor. The price to be paid by the Contractor shall be agreed upon at the time of such purchase. The Government shall at no time during the term of this contract sell any such excess crude oil or products unless it shall first have given to the Contractor the opportunity to buy them at a price equal to the best offer received by the Government and the Contractor shall have failed or refused to purchase the same within ten days after notification to the Contractor of such offer.

ARTICLE XXI—PURCHASE OF FACILITIES

Upon the expiration or termination of this contract (unless such termination shall have been effected for the fault of the Contractor), the Contractor shall have, and is hereby granted for a period ninety days after such expiration or termination (hereinafter referred to as the "option period") the right and option by written notice to the Government to purchase all, or any portion, of the Facilities at a price negotiated with the Government and upon the establishment by the Contractor and the Government of mutually satisfactory terms and conditions; the Government will sell the same to the Contractor. The Government further agrees, to the extent that it lawfully may, that it will not sell the Facilities or any part thereof to any party or parties for a period of one year following the expiration of the full option period, unless it shall first have offered the same for sale to the Contractor at a price equal to the best offer received by the Government, and the Contractor shall have failed or refused to purchase the same within thirty days after the receipt of such offer.

ARTICLE XXII—ASSIGNMENT OF PURCHASE RIGHTS

Upon written notice by the Contractor to the Contracting Officer, the Contractor may assign any part or all of the rights and privileges to which the Contractor is entitled under the provisions of Article XX hereof to Standard Oil Company, an Alaska corporation, or to any other wholly owned subsidiary of the Contractor.

ARTICLE XXIII—APPROVAL REQUIRED

This contract shall be subject to the approval of the Chief of Engineers or any person designated by him.

ARTICLE XXIV—RENEGOTIATION PURSUANT TO SECTION 403 OF THE SIXTH SUPPLEMENTAL NATIONAL DEFENSE APPROPRIATION ACT, 1942

(a) Upon the written demand of the Secretary, at such period or periods when, in the judgment of the Secretary, the profits accruing to the Contractor under this contract can be determined with reasonable certainty, the fixed-fee specified in Article IV will be renegotiated to eliminate therefrom any amount found as a result of such renegotiation to represent excessive profits. The demand of the Secretary shall fix a place for renegotiation and a time for commencement thereof not later than one year after the date of completion or termination of the contract as found by the Secretary.

(b) The Contractor will furnish to the Secretary such statements of actual costs of production and such other financial statements, at such times and in such form and detail, as the Secretary may prescribe, and will permit such audits and inspections of its books and records as the Secretary may request.

(c) The Government shall retain or the Contractor shall repay to the Government as the Secretary may direct any amount of the fixed-fee specified in Article IV found as a result of such renegotiation to represent excessive profits.

(d) The Contractor will include in each fixed-price or lump-sum subcontract made under this contract for an amount in excess of \$100,000, the following provisions:

ARTICLE XXV.*—RENEGOTIATION PURSUANT TO SECTION 403 OF THE SIXTH SUPPLEMENTAL NATIONAL DEFENSE APPROPRIATION ACT, 1942

(1) Upon the written demand of the Secretary, at such period or periods when, in the judgment of the Secretary, the profits accruing to the Subcontractor under this contract can be determined with reasonable certainty, the Secretary and the Subcontractor, will renegotiate the contract price to eliminate therefrom any amount found as a result of such renegotiation to represent excessive profits. The demand of the Secretary shall fix a place for renegotiation and a time for the commencement thereof not later than one year after the date of completion or termination of this contract as found by the Secretary.

(2) The Subcontractor will furnish to the Secretary such statements of actual costs of production and such other financial statements, at such time and in

*This Article will be appropriately numbered in the fixed-price or lump-sum subcontract.

such form and detail, as the Secretary may prescribe, and will permit such audits and inspections of its books and records as the Secretary may request.

(3) Any amount of the contract price found as a result of such renegotiation to represent excessive profits shall be directed by the Secretary—

(A) Be deducted by the Contractor from payments otherwise due to the Subcontractor under this contract; or

(B) Be paid by the Subcontractor directly to the Government.

(4) The Subcontractor agrees that the Contractor shall not be liable to the Subcontractor for or on account of any amount paid to the Government by the Subcontractor or deducted by the Contractor from payments otherwise due under this contract, pursuant to directions from the Secretary in accordance with the provisions of this Article. Under its contract with the Government, the Contractor is obligated to pay or credit to the Government all amounts withheld by it from the Subcontractor hereunder.

(5) As used in this Article—

(a) The term "Secretary" means the Secretary of War or any duly authorized representative of the Secretary, including the Contracting Officer.

(b) The terms "renegotiate" and "renegotiation" have the same meaning as in section 403 (b) of the Sixth Supplemental National Defense Appropriation Act, 1942.

(c) The term "this contract" means this contract as modified from time to time.

(e) In any such subcontract by which the Subcontractor undertakes to supply to the Contractor the same article or articles which the Contractor is required to deliver to the Government under this contract, the Contractor will also include, in addition to sections (1) to (5) required by section (a), the following provisions:

(6) The Subcontractor agrees (a) to include in each fixed-price or lump-sum subcontract hereunder for an amount in excess of \$100,000 the foregoing sections (1) to (5) inclusive, and (b) to make no subdivisions of any contract or subcontract for the purpose of evading the provisions of this section, and (c) to repay to the Government the amount of any reduction in the contract price of any such contract which results from renegotiation thereof by the Secretary and which the Secretary directs the Subcontractor to withhold from payments otherwise due under such contract and actually unpaid at the time the Subcontractor receives such direction.

(f) (1) The Contractor agrees to make no subdivision of any contract or subcontract for the purpose of evading the provisions of this Article.

(2) If any renegotiation between the Secretary and any Subcontractor pursuant to the provisions required by section (a) hereof results in a reduction of the contract price of the subcontract, the Government shall retain from payments otherwise due to the Contractor under this contract, or the Contractor shall repay to the Government, as the Secretary may direct, the amount of such reduction which the Secretary directs the Contractor to withhold from payments otherwise due to the Subcontractor under the subcontract and actually unpaid at the time the Contractor receives such direction.

(g) As used in this Article—

(1) The term "Secretary" means the Secretary of War or any duly authorized representative of the Secretary, including the Contracting Officer.

(2) The term "subcontract" includes any purchase order from, or any agreement with, the Contractor (i) to perform all or any part of the work to be done under this contract, or to make or furnish all or any part of any articles or structures covered by this contract, (ii) to supply any services required directly for the production of any articles or structures covered by this contract, or any component part thereof, not including services for the general operation of the contractor's plant or business, (iii) to make or furnish any articles destined to become a component part of any article covered by this contract, or (iv) to make or furnish any articles acquired by the Contractor primarily for the performance of this contract, or this contract, and any other contract with the United States. The term "articles" includes any supplies, materials, machinery, equipment or other personal property.

(3) The terms "renegotiate" and "renegotiation" have the same meaning as in section 403 of the Sixth Supplemental National Defense Appropriation Act, 1942.

(4) The term "this contract" means this contract as modified from time to time.

ARTICLE XXV—ALTERATIONS

The following changes were made in this contract before it was signed by the parties hereto:

Article XXI deleted
Article XXII amended

In witness whereof, the parties hereto have executed this contract as of the day and year first above written.

THE UNITED STATES OF AMERICA,
By _____, *Contracting Officer.*

CONTRACTOR:
STANDARD OIL COMPANY OF CALIFORNIA,
By J. L. HANNA, *Vice President.*

By G. M. FOSTER, *Assistant Secretary.*

Witnesses as to signature of Contractor:

W. G. WATSON,
225 Bush St., San Francisco, Calif.
ROBERTA L. WILSON,
225 Bush St., San Francisco, Calif.

CERTIFICATION

I, A. K. STEVENSON, do hereby certify that I am the duly qualified Assistant Secretary of the corporation named herein as Contractor; that J. L. HANNA and G. M. FOSTER who signed this contract on behalf of the Contractor, were then and are now the Vice-President and the Assistant-Secretary respectively, of said corporation; that said contract was duly signed for and on behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the STANDARD OIL COMPANY OF CALIFORNIA this 10th day of September 1943.

[SEAL]

A. K. STEVENSON,
Assistant Secretary.

[Exhibit "A" to Contract No. W-2385-Eng.-39]

STANDARD OIL COMPANY (ALASKA)

Subcontractor under Contract No. W-2385-Eng. 44; and No. W-2385-Eng. 39

EMPLOYMENT CONTRACT No.----

Check Type of Contract Applicable Below:

- ☐—Monthly Pay Employees—Approved Type "A" Contract.
☐—Hourly Pay Employees—Approved Type "B" Contract.

STANDARD OIL COMPANY (ALASKA), an Alaska corporation, a Subcontractor engaged in the performance of certain operating, maintenance and construction work known as "Canol Project" in the Dominion of Canada and Alaska, under Contracts No. W-2385-Eng. 44; and No. W-2385-Eng. 39 of the War Department of the United States of America, said Subcontractor being hereafter referred to as the "Employer," employs the "Employee" hereinafter named for service on the aforesaid "Canol Project," upon the following terms and conditions, to which the Employer and Employee agree:

1. Name of Employee-----
Social Security No.-----

Occupation

2. The position for which the Employee represents he is qualified, and for which he is engaged, is that of -----
on an operating, maintenance and construction job in the Dominion of Canada and Alaska. It is understood that although the Employee is engaged for the above mentioned class of work, he may be used, at the option of the Employer, in any other class of work without any reduction in pay. If the Employee is transferred to a class of work bearing a higher rate of compensation than that provided

herein, the Employee will be paid the higher rate in accordance with the Employer's regulations.

Salary or Wage

3. The Employee will be paid on a _____ basis at the rate of \$_____ (Monthly or Hourly) per _____ (Month or Hour)

The Employee, whether paid on an hourly or monthly basis, agrees to work in accordance with the working schedules which are established for the purpose of meeting the requirements of the Contracting Officer insofar as possible, the work being of utmost importance to the War Program. If the Employee is paid on an hourly basis, he will receive one and one-half times the applicable rate for time worked in excess of forty hours per week with a minimum guarantee based on a forty-eight (48) hours per week working schedule. If the Employee is hired for an office position of Senior Clerk or below, as specified in Paragraph 2 hereof, the monthly salary shown above is based on forty (40) hours per week and he will receive overtime at the rate of time and one-half for all time worked in excess of forty (40) hours per week with a minimum guarantee based on a forty-eight (48) hours per week working schedule.

4. Pay shall commence on _____ at _____ and cease on return to _____ except as provided in Paragraphs 13 and 17 hereof.

5. The Employer may at his option pay all earnings or allowances due the Employee in full at the jobsite or in accordance with a separate Allotment and deposit order executed by the Employee. All payments and allowances under this contract are payable in United States currency.

Bed, Shelter and Board.

6. The Employer will furnish bed, shelter and board free of charge to the Employee or in lieu thereof, the Employer will reimburse the Employee for actual expenses incurred for bed, board and shelter provided that such reimbursement shall not exceed \$1.00 per day for bed and shelter and \$2.00 per day for board. In case the Employee be stationed at Edmonton, Alberta, Canada, no bed, shelter, or board will be furnished by the Employer while the Employee is engaged in work at Edmonton. Bed, shelter and board will not be furnished the Employee while he is on vacation or during vacation travel time. Subject to the foregoing an Employee will be furnished bed and shelter, even though receiving an allowance under paragraph 22 hereof, while he is working away from his family.

Clothing.

7. If operating conditions require, the Employer will furnish the following cold weather equipment and clothing: 1 parka; 1 pair gloves; 1 pair iron pants (canvas); 1 footwear (pack of logger's rubbers); 1 bed roll. These supplies must be accounted for and shall not become the personal property of the Employee. Any other necessary cold weather equipment or clothing shall be furnished at the Employee's expense.

Work Location.

8. The Employee is originally assigned for work in the _____ Area. However, it is understood that the Employee may be transferred at any time to any Area in the Canal Project at the discretion and expense of the Employer.

Period of Service.

9. The period of service shall be such period as the Employer may, subject to the provisions of this contract, require the services of the Employee, provided that said period of service shall not, without the consent of the Employee, exceed twelve (12) months from the date hereof; such consent shall be assumed if he continues to work for the Employer after the expiration of twelve (12) months from the date hereof. Such period of service may be terminated at any time without notice by the Employer if so directed by the Contracting Officer.

Transportation.

10. Transportation costs from _____ (point of hire) to _____ will be paid or furnished by the Employer. Transportation costs shall include transportation and reasonable actual expenses, as determined by the Employer. Point of hire, wherever used in this contract shall refer to the point of hire as shown above.

11. The Employer will pay his return transportation costs and expenses if he quits prior to twelve (12) months from the date of this contract or if he is discharged in accordance with Paragraph 13 hereof. If the Employee satisfactorily performs this contract and remains on the job for twelve (12) months, or such lesser time as determined by the Employer, if the Employer will pay or furnish to the Employee return transportation costs, as defined in Paragraph 10 hereof, to the point of hire. The Employee shall secure approval of the Employer in advance of such travel.

Transportation Deposit.

12. The Employee agrees that the Employer may at its option withhold from the compensation of the Employee cost of return transportation and expenses to be paid by the Employee referred to in Paragraph 11 hereof, by withholding not more than one-third ($\frac{1}{3}$) of the Employee's earnings for any pay period until such cost has been accumulated. In the event the Employer accumulates and withholds such cost, the withheld amount shall be refunded to the Employee, upon completion of twelve (12) months of service hereunder, unless he quits or is discharged as herein provided during such twelve (12) months' period, in which case said amount shall be applied to the return transportation costs and expenses to be paid by the Employee.

Termination of Service.

13. If the Employee fails to serve the Employer faithfully and efficiently in accordance with the instructions of the Employer or his agents, or becomes unfit for service through his own ineptitude or misconduct, the Employer shall have the right to discharge the Employee. It is also understood that the Employee may be discharged if such action is requested by the Contracting Officer. This Contract of Employment and all payments hereunder shall cease and terminate on the date of discharge. If the Employer determines that a discharge is made for the best interests of the job and the Employer does not consider the Employee guilty of misconduct or specific misrepresentation of his occupational ability, the Employer may, at its discretion, pay or furnish to the Employee return transportation costs as defined in Paragraph 10 hereof to the point of hire.

Employee Benefits and Special Provisions.

14. Workmen's Compensation Insurance, under Longshoreman's and Harbor Workers Compensation Act as amended by Public Law 208, will be carried by the Employer.

15. In the event that the employee, during the period of service under this contract, is incapacitated on account of accidental injury suffered in the course of employment or on account of illness occurring at a time other than while the employee is on vacation or during vacation travel time, the employer will, if necessary, supplement the amount of compensation insurance payments, if any, paid to the employee so that such employee will receive earnings as defined in Paragraph 16 hereof for not to exceed thirty (30) days in any twelve (12) months period; but no such payments shall be made to the employee for any period in which he may refuse to work, when in the opinion of the doctor or nurse approved by the employer, he is physically able to do so or for any period during which he is so incapacitated as the result of his own misconduct. Additional disability benefits may be payable under Paragraph 16 hereof to an employee who meets the necessary requirements of the employers regulations. During the period of service under this contract the employee will be furnished without charge medical attention and hospitalization in connection with illness in accordance with the United States Engineer Health Service Plan.

16. The Employer shall provide in behalf of the employee, after one or more years of continuous service as defined in the Employer's regulations, its employment provisions and benefits as set forth in the attached summary dated September 1, 1942, entitled, "Employment with Standard Oil Company (Alaska)". Continuous service shall include all continuous service with the Standard Oil Company of California and any other service recognized as such under the regulations of the Standard Oil Company of California. Any disability benefit paid under Paragraph 15 hereof shall be offset against disability benefits payable under this paragraph. Earnings for benefit purposes shall not include the one-half or premium portion of overtime. As to employees who are eligible for overtime, such earnings shall be based on regular straight time earnings for a forty-eight (48) hour week.

17. In the event that the employee, as a result of enemy action, is officially reported as missing from his place of employment or captured by the enemy, it is

understood that he is entitled to all the compensation rights and benefits prescribed by Public Law Number 784 and Public Law Number 208, 77th Congress, in lieu of the compensation provided herein. The employee requests that payments under this section shall be paid to -----

at -----

18. In the event that the Dominion of Canada requires the Employee to pay any income tax on the earnings of the Employee in Canada, the Employee will receive from the Employer the amount by which such Canadian income taxes exceed the amount of income tax that would have been paid in the United States (Federal only) on such earnings, determined in accordance with definitions and formulas to be hereafter established by the Employer. Such amount shall be in addition to all other compensation paid to the Employee under this contract.

Family Provisions.

19. The Employer's broad policy and intent is to permit the Employee, after one or more years of continuous service as defined in the Company's regulations, to have his immediate family with him during his period of service hereunder subject to the availability of housing, the status and location of operations, the nature of the employee's work and other factors. This policy shall be subject to regulations of the American and Canadian Governments and such regulations as the U. S. War Department has established or may establish with respect to permitting dependents to enter and reside in the Canol Project areas. It is possible that such areas may be declared "defense areas" in which case dependents would not be allowed to enter. The Employer shall make a determination in each individual case based on the foregoing considerations and in the event the Employee's immediate family is permitted to join the Employee the Employer will pay transportation costs, as defined in Paragraph 10 hereof, and assist in making arrangements for the transportation of the Employee's wife and children under 18 years of age and the moving of personal effects to the Project from the point of hire.

20. Should the Employee quit or if he is discharged in accordance with Paragraph 13 hereof within the twelve (12) months period subsequent to the date on which the Employee receives written notice that the Employer has determined that his immediate family will be permitted to join him, the Employee will pay return transportation costs and expenses for his family. The Employee agrees that the Employer may at its option, effective from the date of such written notice, withhold from the compensation of the Employee a sum sufficient to cover return transportation costs and expenses for his family, by withholding not more than one-third ($\frac{1}{3}$) of the Employee's earnings for any pay period until such sum has been accumulated, provided, however, that the total deduction under this paragraph and Paragraph 12 hereof shall in no event be more than one-third ($\frac{1}{3}$) of the Employee's earnings for any pay period. If the Employee quits or is discharged as herein provided during the twelve (12) months period subsequent to the date of such written notice, the sum accumulated shall be applied to the family's return transportation costs and expenses to be paid by the Employee.

21. When the Employee shall have satisfactorily completed twelve (12) months of service subsequent to date of aforesaid determination, the Employer will return to the employee the entire sum withheld under Paragraph 20 hereof, and such Employee shall have, subject to prior authorization and approval of the Employer, the right to ask for and receive return transportation costs as defined in Paragraph 10 hereof to the point of hire for his immediate family and personal effects at the Employer's expense.

22. If an Employee's immediate family is permitted to join him under Paragraph 19 hereof, he shall receive from the Employer a subsistence allowance of \$90.00 per month while he is employed hereunder and residing with his family at the Project, provided that no such allowance shall be paid in case the Employee is stationed at Edmonton, Alberta, Canada. The Employer plans to have housing facilities available for use of the Employee and his family and in case the Employee is furnished such facilities he hereby authorizes the Employer to deduct from the aforesaid subsistence allowance a monthly rental charge of \$30.00 per month. An Employee receiving an allowance under this Paragraph shall not be entitled to any board under Paragraph 6 hereof, but such Employee shall be entitled to bed and shelter in accordance with Paragraph 6 hereof, while he is working away from his family.

General Provisions.

23. The Employee shall submit to any required medical examination or inoculation, the cost of which will be paid by the Employer.

24. The Employee hereby certifies that he does not advocate and is not a member of any organization that advocate the overthrow of the Government of the United States by force or violence.

25. The Employee understands that other men from his trade, or other trades or crafts may be employed on the work to be done by the Employer in the Dominion of Canada and Alaska, and that these men may be either Union or Non-Union. The Employee agrees that the employment of such men will not be used as a reason for failure to carry out this contract.

26. It is further agreed that the Employer may, at any time during the term of this contract, assign this contract to any subcontractor who may be engaged on the aforesaid "Canol Project."

27. In the event of accident or emergency, the Employer may notify _____ at _____. This address may be considered the Employee's permanent home address, and the address of the person in whose care the Employer may communicate with the Employee concerning this contract or other matters if it is unable to communicate with the Employee personally.

28. This contract embodies the whole agreement between the parties hereto and there are no inducements, promises, terms, conditions or obligations made or entered into by the Employer other than contained herein. No modification of this agreement may be made except by instrument in writing signed by the Employer's duly authorized representative.

Dated at _____ in septuplicate, this _____ day of _____, 194_____.

STANDARD OIL COMPANY (ALASKA)

By _____
(Employee)

(Employer)

Signed and acknowledged in the presence of:

(As to the Employer)

(As to the Employee)

EMPLOYMENT WITH STANDARD OIL COMPANY (ALASKA)

FOREWORD

"Employment with Standard Oil Company (Alaska)" is designed to make clear the basic employment policies for which the Company stands. The policies set forth herein apply only where this summary has been attached to and made a part of the individual's Employment Contract.

It will be realized that these policies are subject to revision in the light of changing conditions.

If any statement in this summary is not clear to you, you are encouraged to ask your supervisor for a further explanation.

SEPTEMBER 1, 1942

CONDITIONS OF EMPLOYMENT

1. New employees are selected on the basis of their qualifications for the job, including their physical condition. Preferential consideration is given to former employees with a good record of service with the Company who have been laid off due to lack of work.

2. Under ordinary circumstances the Company does not employ individuals under the age of 18 years.

3. Membership or non-membership in any church, society, fraternity, association, union, or other lawful organization does not affect an employee's standing with the Company, nor is it a factor in the selection of new employees.

JOB SECURITY AND CONTINUOUS SERVICE

4. The Company is interested in stabilizing employment and will continue that interest, endeavoring to provide as steady work as economic and operating conditions permit.

5. In making promotions, transfers, and demotions, consideration is given first to ability, then to experience, and then to length of continuous service with the Company. If there are qualified employees within the Company the general practice is to promote them to fill vacancies occurring in higher job classifications.

6. To establish continuous service a new employee must work the full, regular work schedule for one month without losing more than four scheduled work days due to layoff on account of lack of work. His beginning date of continuous service will then be the first work day of such month.

7. In the event of layoff due to lack of work, the individual's service is protected for fixed periods based on the continuous service he has accumulated with the Company. The regulations covering protection against loss of continuous service are summarized below:

An employee working the full, regular work schedule for the position held, whose term of employment has been less than one year and who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 30 calendar days. The total layoff during the first year shall not exceed 45 working days of the employee's yearly work schedule.

An employee with over one year but less than three years' continuous service who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company with 60 calendar days. The total layoff during the second or third year shall not exceed in either year 60 working days of the employee's yearly work schedule.

An employee with three or more years of continuous service who may be laid off because of lack of work shall be considered as having continuous service if he is reemployed by the Company within 90 calendar days.

The total layoff during the fourth year of any subsequent year of continuous service shall not exceed in any one year 90 working days of the employee's yearly work schedule.

8. When layoffs due to lack of work are necessary, consideration will be given to ability, experience, length of continuous service, and family responsibilities. As much advance notice of layoff as practicable will be given.

9. An employee whose service is terminated will be given reason for such action at an interview with his supervisor. In any such case, if the employee feels that an injustice has been done, he may discuss the matter with higher executives of the department in their order.

WAGES

10. It is the policy of the Company to pay fair and reasonable compensation for services rendered by its employees. The Company intends to maintain its pay schedules at a level which compares favorably with average wage scales of the oil industry within its operating area. In setting rates, the Company endeavors to recognize the relative value of the various jobs.

11. Employees with less than one year of continuous service are normally paid on a daily wage basis. Employees with over one year of continuous service are normally paid on a salary basis.

WORKING SCHEDULES

12. Normal working schedules are based on the eight-hour day. Employees are advised of their normal weekly working schedules as far in advance as practicable.

ADJUSTING PROBLEMS AND GRIEVANCES

13. The Company seeks to eliminate sources of misunderstanding and dissatisfaction through continued study of operating and working conditions.

14. The Company believes that employees should be free to discuss matters of mutual interest with the Company. The Company will not interfere with, restrain, or coerce its employees in exercising their right:

- (a) to self-organization;
- (b) to form, join, or assist labor organizations;
- (c) to bargain collectively through representatives of their own choosing.
- (d) to engage in lawful concerted activities, for the purpose of collective bargaining or other mutual aid or protection.

The Company will bargain collectively in respect to rates of pay, wages, hours of employment, or other conditions of employment with the representatives designated or selected for that purpose by the majority of the employees in an appropriate collective bargaining unit.

15. The lawful action of any employee taken in his capacity as a duly authorized representative of other employees will not affect his standing with the Company.

16. The Company recognizes the right of any employee to discuss with his supervisor any grievances, misunderstandings, suggestions, or problems that arise. In taking up such matters the employee is encouraged to use the following procedure so that satisfactory settlement may be made as soon as possible: The matter should be discussed with the employee's immediate supervisor. If the employee is not satisfied, an appeal may be made to the higher executives of the department in their order, with final appeal to the Board of Directors.

TRANSFER OF EMPLOYEES

17. Employees to be transferred by the Company from one locality to another will be informed of the transfer as far in advance as practicable.

18. Employees who are loaned or transferred to the service of an affiliated or subsidiary company not participating in Standard Oil benefits will be advised in writing, at the time the position is offered, of their status in regard to Standard Oil benefits while in the service of the affiliated or subsidiary company.

19. The status of any employees who leave the Company to enter directly into military training or service shall be determined in accordance with Company policy as announced from time to time.

LEAVES OF ABSENCE

20. Employees with one or more years of continuous service may be granted leaves of absence with pay for short periods for justifiable personal reasons or emergencies, such as death or serious illness in the immediate family.

21. If consistent with operating requirements, employees may be allowed leaves of absence for reasonable periods without pay for purposes acceptable to the Company. Requests for leaves of absence without pay in excess of three days should be made in writing to the employee's supervisor and should contain a statement of the length of leave desired, its starting and closing dates, and the reason for the request. All benefits, except life insurance, are suspended during regular leaves of absence without pay of more than three days. All benefits, including life insurance, are suspended in cases of special leaves of absence.

22. Leaves of absence do not affect an employee's record of continuous service if the employee is not absent beyond the term of the leave.

HOLIDAYS

23. The following regular holidays will be observed, so far as operating requirements permit: New Year's Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Memorial Day, or some other day to be designated. If employees work on these days those employees who are eligible for overtime pay under Company regulations will receive pay at the rate of time and one-half. Other employees receive no extra compensation. The Company may, at its discretion, designate such holidays as work days or holidays. If they are designated as holidays, time off with straight time pay may be taken by the employee, except that if the holiday falls on the sixth day of work in a regular scheduled work week, those employees eligible for overtime pay under Company regulations will receive pay at the rate of time and one-half.

24. Special holidays may be observed at various points from time to time when authorized by the Company and will be extended to employees who can be spared from their work. Employees who work on a special holiday do not receive time and one-half pay or equal time off.

VACATIONS

25. All regular employees, after one year of continuous service, are eligible for an annual vacation of two weeks with pay, this vacation to be taken at the convenience of the Company. In the 25th anniversary calendar year of service with the Company, employees receive an extra three-weeks' vacation with pay in addition to the regular two-week period. In each 5th anniversary calendar year thereafter, employees receive four additional weeks' vacation which, with the usual two weeks, represents a six-weeks' vacation with pay. Any holidays occurring during the vacation period are considered as part of the vacation.

26. For the purpose of taking trips out of the Dominion of Canada or Alaska only, the employee provided he is entitled to a vacation under Paragraph 25 hereof, will be permitted to accumulate vacation time amounting to two weeks, three weeks or four weeks by taking a week a year from his regular two-weeks' vacation, and then in the succeeding period the employee will take this accumulated time, plus the regular annual two-weeks vacation period. The employer will grant travel time, with pay, to the employee to cover travel to the point of hire and return, provided that in no case will such travel time exceed ten days. Such travel time will be limited to not over once in every three years. It is not the intention that the accumulation of vacation time under this policy will adjoin the periods of five or six weeks allowed in the 25th or later anniversary calendar years. Pay for vacation purposes shall not include overtime. As to employees who are eligible for overtime, such pay shall be based on regular straight time earnings for a 48-hour week. Employees may not waive vacations and draw double pay.

27. Employees will be given the opportunity to express their preference as to their vacation period. So far as is practicable, the Company will take these requests into account in scheduling vacations. Employees will be advised of their vacation dates as far in advance as practicable.

28. Employees with one or more years of continuous service who are laid off on account of lack of work will be paid in lieu of vacation not received, on the following basis: One week's vacation allowance for each completed period of six months' service between the employee's anniversary service date in the calendar year prior to leaving and the last day of Company service; if the regular vacation in the calendar year of leaving Company service has been received, two weeks' time will be deducted in computing the net allowance. Employees who are discharged or who resign are not entitled to vacation or to vacation compensation. Vacations for employees who return from military training or service will be determined by the Company upon their employment.

BENEFIT PLANS

29. Booklets containing the details of the Annuity Plan and the Life Insurance and Sickness Disability Benefits Plan are available to all employees. The brief summaries included here for convenience do not in any way modify the Plans as set out in the published booklets.

30. *Annuity Plan*—Employees participate in the contributory Annuity Plan after one year of continuous service. The monthly annuity which the Plan provides at normal retirement (65 years for men and 60 for women); when combined with the monthly insurance benefit under the Social Security Act is equal to about 2% of the employee's average monthly earnings multiplied by his years of continuous service. As to employees who have completed 25 years or more of credited service, the Company guarantees to provide funds which, when added to the amounts accumulated through employees' contributions, will secure the payment of the annuities specified under the Plan. Any such employee may retire before his normal retirement date on a reduced annuity.

31. *Sickness and Non-Industrial Injury Benefits*.—The Company provides full-pay benefits to employees with one or more years of continuous service if they are prevented from working due to illness or non-industrial injury, the

duration of the benefits depending on the employee's length of service in accordance with the following schedule:

Completed Years of Service:	Duration of Benefits
1 Year.....	2 Weeks
2 Years.....	4 Weeks
3 Years.....	6 Weeks
4 Years.....	8 Weeks
5 Years.....	11 Weeks
6 Years.....	14 Weeks
7 Years.....	17 Weeks
8 Years.....	20 Weeks
9 Years.....	23 Weeks
10 Years.....	26 Weeks

Benefits continue to accumulate at the rate of three weeks for each year of continuous service after the tenth year, but the total accumulation will not at any time exceed 26 weeks. The time previously paid for is deducted in determining at any time the period for which further payments may be made.

32. *Life Insurance.*—An employee's wife or minor children to whose support he has been contributing are eligible to life insurance in the event he dies after the completion of at least one year of continuous service. The amount of insurance payable increases with service in accordance with the following schedule:

Years of Service:	Months of Salary Paid as Insurance
1 Year.....	3 Months
2 Years.....	4 Months
3 Years.....	5 Months
4 Years.....	6 Months
5 Years.....	7 Months
6 Years.....	8 Months
7 Years.....	9 Months
8 Years.....	10 Months
9 Years.....	11 Months
10 Years or more.....	12 Months

This insurance is provided by the Company without cost to the employee. The Company usually pays the insurance in installments to afford maximum protection to dependents of a deceased employee.

33. *Industrial Disability Benefits.*—Workmen's Compensation is payable to all employees in accordance with applicable laws in the event of industrial disability. After one year of continuous service, employees also receive the excess of their regular pay over the Workmen's Compensation set by law in the event of industrial disability. The duration of these voluntary benefits depends upon the employee's length of service in accordance with a duplicate of the schedule in Paragraph 31. These industrial disability benefits are separate and distinct from sickness and non-industrial injury benefits.

ORDER OF SERVICE

34. Service Pins, a visual recognition of service, are presented to employees following the completion of ten years of service. The ten years of service is indicated on the gold octagonal-shaped pin by two gold stars, one for each five years' service. The completion of each subsequent five years' service brings a new pin carrying an additional star until a five-star pin (representing 25 years' service) has been received. After the completion of 30 years' service, and following each five-year anniversary thereafter, a small diamond (representing 10 years service) supplants a star.

MEDICAL EXAMINATIONS

35. The employee periodically receives free medical examinations and is advised of any physical defects noted at the time of his regular examinations. This frequently aids the employee in detecting a physical weakness before it becomes of serious proportions. Normally each employee is examined every other year up to age 40, and annually thereafter.

ACCIDENT PREVENTION

36. The Company is sincerely interested in the well-being of its employees, and endeavors to provide safe and healthful working conditions. For many years the Company has carried on an intensive program of safety and accident prevention including frequent safety inspections, training of employees in safe practices, and protection against hazardous conditions. The supervisory force, with the assistance of the Safety Division and departmental safety engineers, is responsible for carrying out this program, and it clearly requires the constant cooperation of every employee.

ADMINISTRATION OF PERSONNEL PROGRAM

37. Executives and supervisory forces of the various departments are directly responsible for the administration of the Company's personnel policies within their respective jurisdictions. Administration of these policies is necessarily subject to any laws applicable.

38. The Employee Relations and Personnel Department serves the Board of Directors, Executives, and Supervisors in a staff and advisory capacity and aids in the maintenance, coordination, and development of the Company's personnel policies.

39. The services of the Employee Relations and Personnel Department and field representatives are available to any employee of the Company.

EXHIBIT No. 1086

PETROLEUM ADMINISTRATOR FOR WAR,
Washington, June 24, 1943.

Admiral WM. D. LEAHY, U. S. N.,
*Chief of Staff to the Commander in Chief
of the United States Army and Navy.*

MY DEAR ADMIRAL LEAHY: I wish to acknowledge your letter of June 9 regarding the threatened deficiency in the supply of petroleum products in 1944, and commenting upon the measures that are being taken to prevent it.

Most of the Nation's oil fields are already being produced at capacity. The only fields capable of producing at substantially higher rates are located in the extreme Southwest where this additional capacity has not been available because of limited transportation facilities. Furthermore, it is estimated that by the end of this year the increasing requirements, coupled with the natural decline in productive ability of oil fields, will necessitate the full utilization of all productive capacity thus far developed. Moreover, it is anticipated that essential requirements for petroleum will continue to increase during 1944, causing a shortage of petroleum unless, as you have indicated, the supply is augmented.

An adequate supply of petroleum can be maintained only by the discovery of new petroleum reserves and by the orderly drilling of both presently known and newly discovered oil fields.

In 1941, a normal year, 31,000 wells were drilled. In the light of the demands for petroleum at that time and because of the shortage of steel, I initiated measures at the end of 1941 effecting a more efficient and reduced amount of drilling. Well completions were thereby decreased to 18,000 in 1942, and it is anticipated that there will be a further decrease to 17,000 in 1943. With the recent increases in essential requirements for petroleum and with the further large increases expected, it will be necessary that our drilling program be expanded accordingly. This cannot be accomplished unless the steel allotments requested by this office for future drilling programs are fully met.

Our allotment of carbon steel for the third quarter of 1943 was sharply reduced by the War Production Board, below the amount required for the minimum drilling program that was set up at the beginning of 1943 before the increase in petroleum consumption commenced. The War Production Board did allot us a portion of a supplemental request made by my office, but the final allotment for well drilling in the third quarter of 1943 was only 180,000 tons of carbon steel compared with the 266,000 tons originally requested and required to meet the third quarter requirement under the minimum program formulated at the beginning of the year 1943.

Steel requirements will again be considered when allotments are made for the fourth quarter of this year. Your support, and that of your representatives on the various W. P. B. committees, will be of great help to us in securing the material necessary to carry out our minimum drilling programs.

In addition to making materials available for carrying on such programs, further effort must be made to stimulate the discovery of new fields. Since 1938 we have been consuming our petroleum resources at a rate almost double that at which reserves are being discovered. This condition makes it extremely difficult to maintain our present or an increased production rate for any sustained period. It now becomes necessary that we develop marginal properties and make every effort to secure a greater recovery from known reserves even though such a procedure involves increased costs. It is my conclusion, based upon exhaustive studies made by my staff, that the only practical means for providing the additional funds required to finance these sharply increasing crude oil discovery and production costs is an upward adjustment in crude oil prices. Accordingly, I have on two occasions pressed the Price Administrator to increase crude oil price ceilings, but without favorable action to date.

While planning our drilling programs to assure a sustained supply of crude adequate to meet essential requirements during the war, we are, at the same time, continuing our work to eliminate nonessential uses of petroleum products. The conversion of oil-burning facilities to available substitute fuels is progressing. In some places the opportunities for conversion are better than in others, and the volumes consumed differ widely as between one section of the country and another. The problems and uncertainties confronting us in the conversion from oil to other fuels have been greatly increased as a result of the recent disturbances in the operation of our coal mines. Nevertheless, our objective is to take full advantage of every opportunity to restrict the consumption of petroleum to essential uses.

Considerable difficulty has been occasioned within recent months, especially in the east coast area, by failure properly to relate the issuance of gasoline coupons under the Office of Price Administration's rationing program to the available supplies of gasoline. Each month the Petroleum Administrator for War certifies to the Office of Price Administration the supply of principal petroleum products that will be made available during the ensuing month. Thus far we have made available the amounts that have been certified, but for the past several months the actual demand resulting from the overissuance of coupons has exceeded the supply certified. The difference necessarily has come out of inventory, and because inventories are at dangerously low levels, this unbalanced condition cannot continue.

We have repeatedly called to the attention of the other agencies concerned the necessity of providing for a close correlation between available supplies and the issuance of coupons, and we are hopeful that a procedure will soon be perfected that will assure this result. Unless supply and demand are balanced, it will become increasingly difficult to assure oil supplies for war requirements, and we will be unable to build up our east coast inventories to meet the essential demands of the coming winter.

I appreciate the spirit in which you have written and your readiness to be of assistance to us.

Sincerely yours,

HAROLD L. ICKES,
Petroleum Administrator for War.

EXHIBIT No. 1087

Contract No. W-412-eng-52
Negotiated Contract

FIXED-FEE CONTRACT

--

WAR DEPARTMENT

Contractor and address: Imperial Oil Limited, 56 Church Street, Toronto (2), Canada.

Contract for drilling and operating oil wells, including purchase of oil and other petroleum products by Government.

Location: Dominion of Canada.

Fixed-fee: \$1.00.

Estimated cost exclusive of fixed-fee: \$2,000,000 Canadian currency.

Payment: To be made by:

Finance Officer, U. S. Army, at Edmonton, Alberta.

The supplies and services to be obtained by this instrument are authorized by, are for the purpose set forth in, and are chargeable to the following procurement authorities, the available balances of which are sufficient to cover the cost of the same: ENG. 30729 P 430-59 A-0905-23.

O. P. EASTERWOOD, Jr.,
Captain, Corps of Engineers.

Approved: Aug. 24, 1942.

By direction of the Under Secretary of War.

ALBERT J. BROWNING,
*Colonel, A. U. S.,
Director of Purchases Division.*

This contract is authorized by the following laws: Act approved July 2, 1940 (Public No. 703, 76th Congress) as amended by the Act approved June 30, 1941 (Public Law 139, 77th Congress), Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354—77th Congress), and Executive Order 9001 dated December 27, 1941.

Approval recommended.

AUG. 15, 1942.

E. REYBOLD,
Major General, Chief of Engineers.

THIS CONTRACT, entered into this first day of May, 1942, by the UNITED STATES OF AMERICA (hereinafter called the "Government") represented by the Contracting Officer executing this contract, and Imperial Oil Limited, a corporation organized and existing under the laws of Dominion of Canada and having its principal office at Toronto, Ontario (hereinafter called the "Contractor"), WITNESSETH THAT:

WHEREAS the Government is desirous of obtaining crude oil and petroleum products obtained from wells in the Dominion of Canada at the earliest possible time; and

WHEREAS the Contractor is the owner and operator of oil leases and an oil refining plant, all at or near Norman wells on the McKenzie River West of the Great Bear Lake, Northwest Territories, Canada (hereinafter called the "Norman Area"); and

WHEREAS the Government desires to engage the services of the Contractor to perform certain work and services in connection with the enlargement of the production of crude oil, the storage, sale to the Government, and transportation of said oil and petroleum products obtained from said wells as hereinafter described; and

WHEREAS the accomplishment of the work and services hereinafter set forth under a fixed-fee contract entered into after negotiations approved by the Secretary of War and without advertisement for proposals, is authorized by law; and

WHEREAS as a result of such negotiations, the Secretary of War has directed that the Government enter into a fixed-fee contract with the Contractor for the accomplishment of the work and services hereinafter set forth; and

WHEREAS in order to expedite commencement of the said work and services a letter contract No. W412 eng-52, dated May 1, 1942, was entered into with the Contractor, it being contemplated that said letter contract will be supplemented by a formal contract; and

WHEREAS this contract is deemed necessary by the War Department to facilitate prosecution of the War;

Now, THEREFORE, the parties hereto do mutually agree as follows:

ARTICLE I—STATEMENT OF WORK

1. The Contractor shall, in the shortest possible time, furnish the labor, materials, tools, machinery, equipment, facilities, services and supplies, not furnished by the United States of America, and do all things necessary to accomplish the following:

Item I. Commence drilling as soon as the necessary drilling rigs and materials have been furnished and delivered at Norman Wells by the Government and drill as rapidly as possible on locations within the Norman Area to be selected by the Contractor not less than nine additional wells

and, if possible, as many more wells as may be necessary to furnish a production of approximately 3,000 barrels of crude oil per day in addition to that now being produced; also, if considered necessary by the Government, explore other adjacent areas with prospective oil possibilities geologically and, if practicable, geophysically. When drilled, the wells shall be produced by the Contractor, the necessary gathering system installed and the oil from the said wells gathered and delivered to the pipe line terminal tanks of the Government at Norman Wells.

Item II. Erect such field tanks at the Norman Area as may be necessary for the proper operation of the wells contemplated as rapidly as possible after the tank steel and other material necessary therefor shall have been furnished and delivered at Norman Wells by the Government.

(a) Erect all necessary buildings and structures, together with all necessary facilities, utilities and appurtenances thereto.

2. All work and services shall be commenced and continued by the Contractor as expeditiously as practicable. At any time prior to six months after completion of the work and services to be furnished under Items I and II above, the Government may, at its option, direct the Contractor to construct and operate a casing-head gas recovery plant (hereinafter referred to as the "Plant"), in the Norman Area and the Contractor shall construct and operate such plant on a reimbursable basis, such construction to be commenced by the Contractor as soon as the Government has furnished at Norman Wells the machinery and equipment necessary for such plant (the season permitting such construction). Such plant shall be the property of the Government; however, the Contractor shall have the right and option of purchasing said plant at such price as may be agreed upon between the Contractor and the Government when the same is no longer required by the Government. The Contractor's right and option to purchase shall be exercised within a period of six months from the time the Contractor is notified that such plant is no longer required. The natural gas furnished by the Contractor to said plant will be processed by the Contractor in said plant for the Government and the product shall be sold to the Government at a price calculated according to the standard form of the Natural Gas Association of America based on the price of motor gasoline at Norman Wells, viz, 30 cents (means 10 cents per gal. gas delivered) Canadian currency per Imperial gallon, and the amount payable by the Government for said product will be applied to the credit of the Contractor towards the purchase of any items owned by the Government and extent in the Norman Area for which the option of the Contractor to purchase has been exercised.

3. It is estimated that the cost of the materials, equipment, work and services covered by Article I will be approximately two MILLION Dollars Canadian (\$2,000,000), exclusive of the Contractor's fee. It is expressly understood however that neither the Government nor the Contractor guarantees the correctness of the above estimate. The estimated cost set forth above is based upon the data now available and agreed to by both the Government and the Contractor, a copy of which is on file in the Office of the Chief of Engineers.

4. In consideration for his undertaking under this contract, the Contractor shall receive the following:

a. Reimbursement for expenditures as provided in Article II.

b. A fixed-fee in the amount of ONE Dollar \$1.00 which shall constitute complete compensation for the Contractor's work and services, including profit as set forth in Article V, 1 f, and all general overhead expenses.

5. Except as otherwise provided in this contract, the Contractor shall perform all the work and services with his own forces. The Contractor may with the written approval of the Contracting Officer and in accordance with the provisions of this contract, subcontract any portion of the work and services required under this contract but such subcontracting shall entail no adjustment of the fixed-fee stipulated in Section 4 of this Article, and shall be on a lump sum or unit price basis. The cost-plus-a-fixed-fee form of subcontract will be employed only when the Contractor determines it is to the best interests of the Government, so recommends in writing giving his reasons therefore and obtains the approval of the Contracting Officer.

6. Without any increase in the fixed fee and subject to all the provisions of this contract applicable to the work and services covered by Items I, II, and Section 2 of this Article, the Contracting Officer may, by written order require

the Contractor to drill additional wells at locations selected by the Contractor and to do all things necessary in connection therewith. Without any adjustment in the fixed fee the Contracting Officer may, by written order, issue additional instructions, require additional work or services at the Norman area of the same character as the work and services hereinbefore agreed to be performed by the Contractor, or direct the omission of work or services covered by this contract. Nothing provided in this Article shall excuse the Contractor from proceeding with the prosecution of the work so changed, provided, however, that there shall be no adjustment in the amount of the fixed fee as provided herein, nor any claim therefor because of any errors and/or omissions made in computing the estimated cost of the work and services under this contract or where the actual cost varies from the estimated cost.

7. The Government will purchase and deliver to the Norman Area the drilling rigs, tank steel, casing and other materials, tools, equipment, and supplies necessary for the expeditious prosecuting of the work under this contract. Title to the wells with the casing and master gate will vest in the Contractor and title to all other materials and equipment referred to above will remain with the Government. There shall be included in the costs of the materials and equipment purchased by the Government or reimbursed to the Contractor by the Government the cost of transportation thereof to the site of the work or other point of utilization. The Contractor shall have the right and option of purchasing such property at such price as may be agreed upon between the Contractor and the Government when the same, or any part thereof, is no longer required by the Government. Such right and option to purchase shall be exercised within a period of six months from the time the Contractor is notified that such property is no longer required.

8. *a. Wells under Item I.*—The Government will purchase and the Contractor will sell all crude oil produced from the wells drilled under Item I hereof except as hereinafter provided at the price of \$1.25 (1.136 U. S.) Canadian currency net per barrel of 42 U. S. gallons corrected to a temperature of 60° Fahrenheit. Such oil shall become the property of the Government as delivered into the terminal tanks of the pipe line at Norman Wells.

b. Existing wells.—The Contractor will, unless or until otherwise notified by the Government, produce at his own expense the wells now existing in the Norman area at the maximum producing rate consistent with good operating practice and will process all of the crude oil so obtained for the production of the products now being produced at the Contractor's refinery and the Government shall furnish the tankage necessary to receive and store the products so produced. The Government agrees to purchase and the Contractor to sell all of the said products (excepting such crude oil and products as may be required for the Contractor's own business) at a price of \$1.75 (1.59 U. S.) Canadian currency per barrel for the crude oil delivered for such processing, plus 65¢ (\$.59 U. S.) Canadian currency per barrel for the cost of processing and handling.

9. Title to all products purchased by the Government shall pass currently as produced.

10. It is understood that the Government is to look solely to the oil and other products produced under this contract in the Norman area or the area adjacent thereto for repayment for all monies advanced by it to the Contractor and expended hereunder. If and when the Government has purchased from the Contractor at the per-barrel price indicated in subsections *a* or *b* of Section 8 above an aggregate of 1,500,000 barrels of crude oil produced from the Norman area or the area adjacent thereto (not including the amount excepted above for the Contractor's own business), the Government shall thereafter pay to the Contractor 50¢ Canadian currency net for each barrel of 42 U. S. gallons corrected to a temperature of 60° Fah. of crude oil produced from the wells drilled hereunder and purchased by it from the Contractor hereunder until all the monies payable by Government to the Contractor for wages and salaries (including geological and geophysical exploration), materials, tools, equipment, and supplies relating to the cost of the work and services performed by the Contractor hereunder have been recovered by the Government, said recoupment to be computed at the rate of 75¢ Canadian currency for each barrel of oil so purchased by the Government hereunder, and thereafter the price payable by the Government to the Contractor for such oil shall be \$1.25 Canadian currency net per barrel of 42 U. S. gallons corrected to a temperature of 60° Fah. and of the said price 50¢ Canadian currency per barrel shall be paid to the Contractor and 75¢ Canadian currency per barrel shall be held by the Government and placed in a special account to the credit of the Contractor and either applied on the

purchase price of any materials or items owned by the Government and extant in the Norman area for which the option of the Contractor to purchase has been exercised or, in case such option has not been exercised or any excess over such purchase price remains to the credit of the Contractor in said account, the amount so standing or remaining to the credit of the Contractor shall be paid to the Contractor on the termination of this contract. It is further understood that if the Government does not purchase under this agreement an aggregate of 1,500,000 barrels of crude oil produced from the Norman area or the area adjacent thereto (not including the amount excepted above for the Contractor's own business) the Contractor is under no obligation to repay any monies expended under this contract by the Government. Nothing herein contained shall release the Contractor from the duty to account for advance payments under the provisions of this contract.

ARTICLE II—COST OF THE WORK

1. *Reimbursement for Contractor's Expenditures.*—The Contractor shall be reimbursed in the manner hereinafter described for such of his actual expenditures in the performance of the work as may be approved or ratified by the Contracting Officer and as are included in the following items:

a. All labor, materials, tools, machinery, equipment, supplies, works, services, power, and fuel necessary for either temporary or permanent use for the benefit of the work.

b. All subcontracts made in accordance with the provisions of this contract.

c. Rental actually paid by the Contractor for equipment at rates and subject to such other terms and conditions as may be approved by the Contracting Officer.

d. Due to the location and nature of the work, it is not contemplated that the Contractor will furnish any of his own equipment. If any be furnished, rental rates and other terms and conditions shall be as agreed upon with the Contracting Officer.

e. Transportation charges on materials, equipment, and supplies. If Government transportation and facilities are used the fair commercial peacetime transportation cost as determined by the Contracting Officer, if other than Government transportation facilities are used, the actual cost thereof.

f. Transportation and traveling expenses to and from the work of the necessary field forces for the economical and successful prosecution of the work; expenses of procuring labor and expediting the production and transportation of material and equipment. Expenditures under these items must have the written approval of the Contracting Officer.

g. Salaries of resident engineers, superintendents, timekeepers, foremen, and other field employees of the Contractor in connection with the work. In case the full time of any field employee of the Contractor is not applied to the work, his salary shall be included in this item only in proportion to the actual time applied thereto. No person shall be assigned to service by the Contractor as superintendent of construction, chief engineer, chief purchasing agent, chief accountant, or similar position in the Contractor's field organization, or as principal assistant to any such person, until there has been submitted to and approved by the Contracting Officer a statement of the qualifications, experience, and salary of the person proposed for such assignment. The regular salary or compensation rate of any such person shall not be in excess of the highest salary or compensation rate received by him during the year preceding the date of this contract plus such increase as the Contracting Officer may approve. Except for the salary of a Project Manager at the rate of not to exceed \$17,000 per annum as may be approved by the Contracting Officer and an allowance for subsistence at a rate not to exceed \$1,800 per annum as may be approved by the Contracting Officer, no reimbursable salary shall be greater than at the rate of \$9,000 per annum.

h. An allowance for subsistence not to exceed \$5.00 per day (or its equivalent in Canadian currency) actually paid to such employees of the Contractor employed at the site of the work.

i. Buildings, trade fixtures, and equipment required for necessary field offices, commissaries, hospitals, and other facilities, and the cost of maintaining and operating such field offices, commissaries, hospitals, and other facilities; provided that the Contractor may enter into a contract with any third party or parties for the operation of the commissaries, hospitals, or other facilities

provided for herein, in which event such contract shall be reduced to writing and the terms thereof subject to the prior written approval of the Contracting Officer.

j. Temporary rights other than those now owned or controlled by the Contractor in land required in connection with the work and subject to the written authorization of the Contracting Officer in advance.

k. Premiums on such bonds and insurance policies as the Contracting Officer may approve or require as reasonably necessary for the protection of the Government or the Contractor, including the employees of the Contractor. In every instance where this contract requires or permits the Government to pay the premium on a bond or insurance policy either directly or ultimately as a reimbursable item, the bond or insurance policy shall contain an indorsement or other recital excluding by appropriate language any claim on the part of the insurer or obligor to be subrogated, on payment of a loss or otherwise, to any claim against the Government.

l. Losses and expenses, not compensated by insurance or otherwise (including settlements made with the written consent of the Contracting Officer), actually sustained by the Contractor in connection with the work and services and found and certified by the Contracting Officer to be just and reasonable unless reimbursement therefor is expressly prohibited.

m. The cost of reconstructing and replacing any of the work destroyed or damaged, and not covered by insurance, but expenditures under this item must have the written authorization of the Contracting Officer in advance.

n. Payments from his own funds made by the Contractor under any social legislation, including workmen's compensation and unemployment insurance and any disbursements required by law which the Contractor may be required on account of this contract to pay on or for any plant, equipment, process, organization, materials, supplies, or personnel; or drilling and operating of said wells including the production, storage, and sale of the oil and, if approved in writing by the Contracting Officer, permit and license fees (not including fees for permits and licenses now owned or controlled by the Contractor) and royalties on patents used including those owned by the Contractor; also the cost to the Contractor of maintaining in favor of those regular employees of Imperial Oil Limited and its participating subsidiaries whose services are required to carry out the work under this contract and for the period or periods during which such employees' services are required for that purpose, such benefits as the said employees are entitled to receive under the Benefit and Thrift plans of Imperial Oil Limited; also the cost-of-living bonus payable to employees as fixed by the Canadian authorities.

o. All taxes accruing after commencement of the work and until the Government shall have been reimbursed for all expenditures under this contract which the Contractor may be required to pay to the Dominion of Canada, or any political subdivision thereof, as a result of the performance of this contract.

The taxes referred to in this subsection *o* shall not include income taxes payable to the Dominion of Canada in relation to or by reason of the price paid (whether in cash or partly in cash and partly held in special account to the credit of the Contractor) by the Government to the Contractor for oil and petroleum products purchased hereunder, which income taxes the Contractor shall assume and be responsible for without recourse to the Government; in the event that the Dominion of Canada claims or holds that income taxes are payable to it in relation to or by reason of the 75¢ Canadian currency per barrel to be applied by the Government under section 10 of Article I hereof to its recovery and recoupment of the monies paid by or due from it to the Contractor, all as particularly set forth in said section 10, the Government shall be responsible for such last mentioned income taxes and shall indemnify and save harmless the Contractor against and from all claims and demands for such income taxes; provided, however, that any income tax payable in relation to or by reason of any property delivered to the Contractor pursuant to the first clause of section 5 of Article VI hereof shall be assumed by the Contractor.

p. If the Contractor and/or his representative shall be required to travel the Government will reimburse the Contractor for the transportation, including Pullman or cabin where necessary, and will allow for such travel Six Dollars (\$6.00) United States currency per day in lieu of all other expenses within the continental limits of the United States and Seven Dollars

(\$7.00) per day outside the continental limits of the United States. Transportation by automobile on such required travel shall be reimbursed at the rate of Five Cents (\$.05) per mile as representing the actual cost of such transportation.

All travel shall be either authorized or approved in writing by the Contracting Officer. Should the Contractor, or any representative thereof, remain in a travel status in excess of six (6) days at any one time, not including the time consumed in travel, the cost for such excess travel status shall be at the expense of the Contractor unless otherwise approved in writing by the Contracting Officer.

g. When specifically approved in advance by the Contracting Officer, a reasonable allowance for work done in the Contractor's general offices exclusively for and directly chargeable to the work.

r. Disbursements incident to payment of pay rolls, including but not limited to, the cost of disbursing cash, necessary guards, cashiers, and paymasters. If payments to employees are made by check, facilities for cashing checks must be provided without expense to employees, and the Contractor shall be reimbursed therefor.

s. All expenditures for which reimbursement has not been made pursuant to Letter Contract dated May 1, 1942, which is attached hereto. Such Letter Contract is hereby merged and superseded by this contract.

t. Such other items not expressly excluded by other provisions of this contract as should, in the opinion of the Contracting Officer, be included in the cost of the work. When such an item is allowed by the Contracting Officer, it shall be specifically certified as being allowed under this subsection.

General.

2. Subject to the right and option of the Contractor to repurchase the casing-head gas recovery plant and the drilling rigs, tank steel, and other materials as provided in Article I, Section 2, and Article I, Section 7, title to all materials, tools, machinery, equipment, and supplies procured in the United States for which the Contractor shall be entitled to reimbursement under Article II shall vest in the Government at the point or points of procurement in the United States and the Contracting Officer shall inspect and accept such items at such points. Titles to all materials, tools, machinery, equipment, and supplies procured in the Dominion of Canada for which the Contractor shall be entitled to reimbursement under Article II shall vest in the Government at such point or points as the Contracting Officer may designate in writing, provided that the right of final inspection and acceptance or rejection of such materials, tools, machinery, equipment, and supplies at such place or places as he may designate in writing is reserved to the Contracting Officer; provided further that, upon such final inspection, the Contractor shall be given written notice of acceptance or rejection as the case may be. In the event of rejection, the Contractor shall be responsible for the removal of the rejected property within a reasonable time.

3. The work shall be executed in the best and most workmanlike manner by qualified, careful, and efficient workers, in strict conformity with the best standard practices under the prevailing conditions.

4. Except as otherwise authorized by the Contracting Officer, all materials shall be of the best quality of their respective kinds. If the Contracting Officer requires that the Contractor submit for prior approval samples of materials proposed for use in the work covered by this contract the Contractor shall make no commitments for such materials until the submitted sample has been approved by the Contracting Officer.

5. During the performance of this contract the work shall be under the full-time resident direction of one or more senior officers; provided, however, that the Contractor may be represented in the direction of the work by some person of a class other than that specified above, if the Contracting Officer gives his approval. In such event the Contractor shall not be entitled to be reimbursed in an amount in excess of \$9,000 per annum for any salary, wages, or like compensation paid for such direction of the work performed by such representative.

6. The Government reserves the right to furnish any materials, construction equipment, machinery, tools, or services, including communication services necessary for the completion of the work. The Contractor shall cause all equipment, machinery, and tools to which title is vested in the Government to be suitably marked with an identifying mark or symbol indicating that such items are the property of the United States. The Contractor shall maintain at all times, in manner satisfactory to the Contracting Officer, records showing the disposition

and/or use of all equipment, machinery, tools, and materials purchased for the work and for which he has been reimbursed by the Government or which have been furnished by the Government. Upon the completion of this contract or upon demand the Contractor shall return such equipment, machinery, tools, and unused materials which may be extant, except such machinery and equipment with respect to which the right and option to purchase same has been exercised as provided in Article I, Section 2, or Article I, Section 7, to the place designated by the Contracting Officer, the cost of which return will be reimbursed as an item of expenditure in accordance with the provisions of this contract. The Contractor shall be liable for the fair value of such portion of the equipment, machinery, tools, and materials which are lost, damaged, or destroyed as a result of his failure to exercise reasonable care with respect thereto; and the amount thus determined shall be chargeable to the Contractor and the Government reimbursed therefor in oil and other products produced from said wells or in cash if no such products are produced from said wells. The determination as to whether or not reasonable care was exercised by the Contractor shall, in every instance, be made by the Contracting Officer, provided, that the Contractor shall not be liable for any loss or damage if such loss or damage occurs while the Contractor is conducting its operations in accordance with oil field practices accepted and followed in performing similar operations under similar conditions in the United States.

7. (a) The Government reserves the right, to be exercised when it so wishes, to pay directly to common carriers any or all freight charges on equipment, materials, and supplies, and any or all charges for transportation of employees of the Contractor.

(b) The Government will pay direct for all telegraphic communications (including teletype and facsimile when authorized by the Contracting Officer to be installed), cablegrams, radiograms, and similar messages that may be sent by the Contractor pertaining directly to the contract for work to be done or materials to be furnished thereunder, and the Contractor is hereby designated as an agent of the Government for the purpose of causing to be transmitted any such messages.

8. If the Contractor fails to pay for labor, materials, or other charges the Government reserves the right to pay directly to the persons concerned all sums due from the Contractor for labor, materials, or other charges.

9. No salary of the Contractor, or corporate officers of the Contractor, shall be included in the cost of the work. No part of the expense incurred in conducting the Contractor's main office or regularly established branch offices, and no overhead expense of any kind, except as specifically authorized in Section 1 of this Article, shall be included in the cost of the work; nor shall any interest on capital employed or on borrowed money be included in the cost of the work.

10. The Contractor shall, to the extent of his ability, take all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and bonifications, and when unable to take advantage of such benefits he shall promptly notify the Contracting Officer with the reason therefor. In determining the actual net cost of articles and materials of every kind required for the purpose of this contract there shall be deducted from the gross cost thereof all cash and trade discounts, rebates, allowances, credits, commissions, and bonifications which have accrued to the benefit of the Contractor or would have so accrued but for the fault or neglect of the Contractor. Such benefits lost through no fault or neglect on the part of the Contractor, or lost through fault of the Government, shall not be deducted from gross costs.

11. All revenue received by the Contractor from the operations of the hospital, commissaries, dormitories, housing, heating, and other facilities, or from rebates, discounts, refunds, etc., shall be accounted for by the Contractor and, except for any reasonable compensation accruing to a third party or parties for the operation of such facilities, applied in reduction of the cost of the work.

12. It is understood and agreed that time is of the essence of this contract, and for the purpose of facilitating the early completion of the work to be done hereunder and insofar as work under this contract in the Dominion of Canada is concerned the Government does hereby waive all Interdepartmental Regulations, as contrasted with laws, ordinarily applicable within the United States but inconsistent with the provisions of this contract whereby such waiver will hasten the completion of the project.

13. It is understood and agreed that wherever the words "dollars," "cents," "currency," or figures denoting dollars and cents are used they shall mean United States currency unless otherwise specifically provided.

ARTICLE III—PAYMENTS

1. *Advance Payments.*—*a.* At any time and from time to time after the execution of this contract, the Government at the request of the Contractor and subject to the approval of Chief of Engineers or his duly authorized representative, or the person to whom authority to make advance payments has been delegated, as to the present need therefor shall advance to the Contractor without payment or interest thereon by the Contractor, sums not to exceed thirty per centum (30%) of the estimated cost of the contract (exclusive of the Contractor's fixed fee), as it may be amended from time to time.

b. As a condition precedent to the making of any advance payment or payments as hereinbefore provided, the Contractor shall furnish the Government with such adequate security as the Under Secretary of War or the person to whom authority has been delegated to make advance payments shall prescribe: *Provided*, That, if other security is not prescribed, the terms of this contract shall be considered adequate security for such advance payments: *And provided further*, If at any time the Under Secretary of War deems the security furnished by the Contractor to be inadequate, the Contractor shall furnish such additional security, in the form of a surety bond or surety bonds, as shall be satisfactory to the Under Secretary of War.

c. Until all advance payments hereunder are liquidated, all sums received as advance payments under this contract together with all funds received as reimbursements for the cost of the work under Article II of the contract, exclusive of the Contractor's fixed fee, shall be deposited in a special bank account or accounts at a member bank or banks of the Federal Reserve System, or, in the discretion of the Contracting Officer, at such bank or banks in the Dominion of Canada as he shall approve, separate from the Contractor's general or other funds. Such special bank account or accounts shall be so designated as to indicate clearly to the bank their special character and purpose, and the balance in such account or accounts shall be used by the Contractor exclusively as a revolving fund for carrying out the purposes of the contract and any amendments thereto and not for other business of the Contractor. Any balances from time to time in such special account or accounts shall at all times secure the repayment of the advances in connection with which the special account or accounts are opened, and the Government shall have a lien upon such balances to secure the repayment of such advances, which lien shall be superior to any lien of the bank or any other person upon such account or accounts by virtue of assignment to it of such contract or otherwise: *Provided*, That the Bank shall be under no liability to any party hereto for the withdrawal of any funds from said special account upon checks, properly endorsed and signed by the Contractor, except that after the receipt by the bank of written directions from the Chief of Engineers or his duly authorized representative, the bank shall act thereon and be under no liability to any party hereto for any action taken in accordance with the said written directions. Any instructions or written directions received by the bank through the Contracting Officer upon War Department stationery and purporting to be signed by, or by the direction of, the Chief of Engineers or his duly authorized representative, shall, insofar as the rights, duties, and liabilities of the bank are concerned, be conclusively deemed to have been properly issued and filed with the bank by the Chief of Engineers or his duly authorized representative.

d. It is agreed that the aggregate of the advance payments authorized by this contract together with funds received as reimbursement for the cost of the work by the Contractor under Article II of the contract shall, at no time, exceed the total estimated cost of the work under the contract as it may be revised from time to time and any such excess shall be immediately repaid by the Contractor to the Government or if any reimbursement is due from the Government to the Contractor, shall be deducted therefrom: *Provided, however*, That if the total cost of the work under the contract shall be in excess of the amount so paid to the Contractor, including said advance payments, the Government upon presentation of satisfactory evidence shall currently and promptly reimburse the Contractor to the extent of such excess cost (subject to any delay in the availability of appropriated funds).

e. If, upon completion of this contract, or upon the termination thereof for other than the fault of the Contractor, the advance payments made to the Contractor in respect of this contract have not been fully liquidated in the manner herein provided, the unliquidated balance of such advance payments shall be deducted from any payments otherwise due the Contractor in respect of this contract; and if the sum or sums due the Contractor be insufficient to cover such

balance, the deficiency shall be paid by the Contractor in cash forthwith after demand and final audit by the Government of all accounts hereunder in respect of this contract. In the event of cancellation or termination of this contract because of the fault of the Contractor, the Contractor, notwithstanding any ultimate rights to be reimbursed, agrees to return to the Government, upon demand, without set-off of any sums alleged to be due the Contractor, the unliquidated balance of any advance payment. Furthermore, if, in the opinion of the Chief of Engineers or his duly authorized representative the unobligated balance of the advance payments made by the Government under Section 1 hereof exceed the amount necessary for the current needs of the Contractor, as determined by the Chief of Engineers or his duly authorized representative, the amount of such excess shall, upon demand made by the Chief of Engineers or his duly authorized representative, be promptly returned to the Government and will be credited against the balance due the Government on advances previously made. If the demand made in any event set forth in this Section is not met upon receipt of such demand by the Contractor, the amount demanded will bear interest at the rate of six percent (6%) per annum from the date of the receipt of the demand until payment is made: *Provided, however*, That such payment of interest is hereby waived as to any sums paid by the Contractor within 15 days after the amount becomes due hereunder. If and when the Contractor has, by means of deductions or otherwise, reimbursed the Government in full for payments made, any money remaining in the special bank account or accounts shall be free and clear of any lien hereunder and the bank or banks concerned shall have authority to pay same to the Contractor and shall thereupon be relieved of any further obligation to the Government on account thereof.

f. The Contractor shall, at all times afford to the Contracting Officer, or his duly authorized representative, proper facilities for the inspection and audit of the Contractor's accounts, and the Contractor hereby agrees that the Contracting Officer, or his duly authorized representative shall have the right so far as the Contractor's rights are concerned, during business hours, to inspect and make copies of any entries in the books and records of the bank or banks relating to the said special account or accounts.

g. Subject to the approval of the Contracting Officer or his duly authorized representatives the Contractor may make payments to subcontractors and materialmen in advance out of the special account, for labor or services, or to pay for materials in advance of delivery at the site of the work or at an approved storage site. Such sub-advances shall not exceed 30% of the subcontract price or estimated cost, as the case may be, and the subcontractor or materialmen to whom such advances are made shall furnish adequate security therefor. Unless other security is furnished, covenants in subcontracts, expressly made for the benefit of the Government, providing for a sub-special account with Government lien thereon and for a Government lien on or title to property, tangible or intangible, purchased from the special account, and imposing upon the subcontractor substantially the same duties and giving the Government substantially the same rights as are provided herein between the Government and the Contractor, have been prescribed by the Under Secretary of War as minimum adequate security for such sub-advances.

2. *Reimbursement for Cost.*—The Government will currently reimburse the Contractor for expenditures made in accordance with Article II upon certification to and verification by the Contracting Officer of the original signed pay rolls for labor, the receipted invoices for materials, and such other documents as the Contracting Officer may require. Generally, reimbursement will be made monthly but may be made at more frequent intervals if the conditions so warrant.

3. *Payment of the Fixed-Fee.*—The fixed-fee of One Dollar (\$1.00) set out in Article I shall be paid at the completion or termination of this contract, whether terminated by the Government or not and irrespective of the quantum of work and services performed under this contract.

4. *Payments by Contractor.*—If bills for purchase of material, machinery or equipment, or pay rolls covering employment of laborers or mechanics incurred by the Contractor or by any subcontractor hereunder are not paid promptly by the Contractor or subcontractor as the case may be, the Contracting Officer may, in his discretion, withhold from payments otherwise due the Contractor an amount equivalent to the amount of any such bill or pay roll. Should the Contractor neglect or refuse to pay such bills or pay rolls or to direct any subcontractor to pay such bills or pay rolls within five (5) days after notice from the Contracting Officer so to do, the Government shall have the right to pay such

bills or pay rolls directly, and in such event a sum equal to five percent (5%) of the amount so paid directly, shall be made chargeable to the Contractor and the Government reimbursed therefor in oil and/or other products produced from said wells.

5. *Final Payment.*—Upon completion of the work and its final acceptance in writing by the Contracting Officer, the Government shall pay to the Contractor the unpaid balance of the cost of the work determined under Article II hereof, less any sum that may be necessary to settle any unsettled claims in connection with this contract, or any claim the Government may have against the Contractor. The Contracting Officer shall accept the completed work with reasonable promptness. Prior to final payment and as condition thereto, the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of this contract other than such claims, if any, as are specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein.

ARTICLE IV—RECORDS AND ACCOUNTS INSPECTION AND AUDIT

1. The Contractor agrees to keep records and books of account, showing the actual cost to him of all items of labor, materials, equipment, supplies, services, and other expenditures of whatever nature for which reimbursement is authorized under the provisions of this contract; such records and books of account shall also show the quantities and prices of oil and other products produced from said wells and sold to the Government hereunder, and such other pertinent information as may be required by the Contracting Officer. The system of accounting to be employed by the Contractor shall be such as is satisfactory to the Contracting Officer.

2. The Contracting Officer shall at all times be afforded proper facilities for inspection of the work and shall at all times have access to the premises, work and materials, to all books, records, correspondence, instructions, plans, drawings, receipts, vouchers, and memoranda of every description of the Contractor pertaining to said work except such documents as have been submitted in support of reimbursement vouchers; and the Contractor shall preserve such papers without additional compensation therefor, for a period of three (3) years after completion or termination of this contract.

3. Any duly authorized representative of the Contractor shall be accorded the privilege of examining the books, records, and papers of the Contracting Officer relating to the cost of the work for the purpose of checking and verifying such cost.

4. In order to avoid so far as possible duplication in accounting and auditing functions performed by the Contractor and the Government, it is agreed that the following accounting and auditing functions shall be performed by the Government exclusively:

a. Time checking (not time keeping) in the field, or in the Contractor's plant.

b. Audit of original pay rolls of the contractor (or such portions thereof as are applicable), where such pay rolls are prepared by the Contractor.¹

c. Such other accounting and auditing functions as may be effectively performed by Government employees and to which the Contracting Officer and the Contractor may mutually agree in writing.

5. It is further agreed that if any of the accounting and auditing functions performed exclusively by the Government do not adequately discharge such accounting and auditing functions to the satisfaction of the Contractor, the Contractor, with the approval in writing of the Contracting Officer, may perform such additional checking and auditing as may be so approved. The Contractor shall be reimbursed for the cost of such additional accounting and auditing functions as are so approved.

ARTICLE V.—SPECIAL REQUIREMENTS

1. The Contractor hereby agrees that he will:

a. Procure and maintain such bonds and insurance in such forms and in such amounts and for such periods of time as the Contracting Officer may require.

¹ Note: Where pay rolls are prepared by the Government the audit thereof by the Government will be concurrent with such preparation.

b. Procure all necessary permits and licenses; obey and abide by all applicable laws, regulations, ordinances, and other rules of the United States of America, of the State, Territory, or political subdivision thereof, and of the Dominion of Canada and the duly constituted authorities of that country, where the work and services are performed.

c. Reduce to writing, unless this provision is waived in writing by the Contracting Officer, every contract in excess of two thousand dollars (\$2,000) made by him for the purpose of the work hereunder for services, materials, supplies, machinery, equipment, or for the use thereof: insert therein a provision that such contract is assignable to the Government; make all such contracts in his own name, and not bind or purport to bind the Government for the Contracting Officer thereunder. No purchases in excess of \$500 shall be made or placed without the prior approval of the Contracting Officer.

d. Enter into no subcontract for any portion of the work, except in the form prescribed by the Chief of Engineers with the written approval of the Contracting Officer. Subcontracts are defined as contracts entered into by the Contractor with others which involve the performance, wholly or in part at the site of the work, of some part of the work described in Article I hereof.

e. At all times during the progress of the work, keep at the site thereof a duly appointed and qualified representative who shall receive and execute on the part of the Contractor such notices, directions, and instructions as the Contracting Officer may give.

f. Apply any profit (but not including any profit which may result from the discovery, production, and/or sale of crude oil or petroleum products sold to the Government hereunder or otherwise in the Dominion of Canada) over and above the fee as fixed in Article I hereof which inures to the Contractor, or to any corporate officer of The Imperial Oil Limited from any transaction related to the performance of this contract or any subcontract hereunder, towards reduction of the cost of the work by payment in oil and other products produced from said wells, over the 1,500,000 barrels, from existing wells as provided in Section 10 of Article I.

g. Furnish sufficient technical, supervisory and administrative personnel to insure the prosecution of the work in accordance with a progress schedule approved by the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind a progress schedule approved by the Contracting Officer, the Contractor shall take such steps as may be necessary to improve his progress and the Contracting Officer may direct him to increase working days, or hours of labor per day, but the Contractor shall not be required to do anything contrary to the laws and regulations in force in the Dominion of Canada. Failure to promptly comply with such directions shall be deemed sufficient cause to terminate the contract for the fault of the Contractor.

h. Immediately upon termination of third-party rental agreements, make all repairs to equipment rented thereunder which are required to be made by the terms of such rental agreements and shall remove such equipment from the site of the work. In cases where such repairs and removal cannot promptly be made, the Contractor shall notify the Contracting Officer of the reasons for such delay.

2. The Contracting Officer may require the Contractor to dismiss from work such employee or employees as the Contracting Officer deems incompetent, careless, or insubordinate, or whose continued employment is deemed inimical by the Contracting Officer to the public interest. If any such employee so dismissed was not hired at the Norman Area, the cost of his return transportation to the place of hiring and replacement as may be approved or ratified by the Contracting Officer shall be included as reimbursable items in accordance with the provisions of this contract. The Contractor shall make every reasonable effort in the selection of his employees and in the prosecution of the work under this contract, to safeguard plot drawings and schematic drawings furnished him and drawings and specifications, and to prevent the theft or unauthorized use of the same.

3. *Force Majeure*: It is understood and agreed that the Contractor will not be liable for delays or defaults in performance under this contract due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor including, but not restricted to, acts of God, or of the public enemy; acts of the United States or Canadian Government; fires; floods; epidemics; quaran-

tine restrictions; strikes; freight embargoes; and unusually severe weather or delays of subcontractors due to such causes; provided, that nothing contained in this contract shall be construed to restrict or limit the right of the Government to enter upon the premises in accordance with Section 2 or Article VI.

ARTICLE VI—TERMINATION OF CONTRACT BY THE GOVERNMENT; RIGHT OF ENTRY BY THE GOVERNMENT

1. The Government may terminate this contract at any time by a notice in writing from the Contracting Officer to the Contractor. Such termination shall be effective in the manner and upon the date specified in said notice and shall be without prejudice to any claims which the Government may have against the Contractor. Upon receipt of such notice, the Contractor shall, unless the notice directs otherwise, immediately discontinue all work and the placing of all orders for materials, facilities, and supplies in connection with performance of this contract and shall proceed to cancel promptly all existing orders and terminate all subcontracts insofar as such orders and/or subcontracts are chargeable to this contract.

2. If, in the opinion of the Contracting Officer, the Contractor refuses or fails to prosecute the work and services, or any separable part thereof, or refuses or fails to cause the work and services, or any separable part thereof, to be prosecuted with such diligence as will insure its completion as expeditiously as practicable, all with or without fault of the Contractor, or if, in the opinion of the Contracting Officer, it is deemed necessary to facilitate the prosecution of the war, the Contracting Officer may enter upon the premises and take possession for the purpose of completing the work and services contemplated by this contract, of any or all materials, tools, machinery, equipment, and appliances which may be owned by or under the control or in the possession of the Contractor (including all property to which the Government has title) and all options, privileges, and rights which may be owned by or under the control of the Contractor, for the purpose of completing the work and services, and may complete or employ any other person or persons to complete said work and services. It is expressly understood and agreed, however, that any such entry or any acts performed thereafter by the Government upon the premises shall be only for the purpose of completing the work and services. Such entry shall not constitute termination of this contract nor shall the Government acquire any rights in the premises other than such temporary rights as may be requisite and necessary to complete the work and services. While the Government is in possession, the oil and other products produced from the said wells will continue to be purchased by the Government from the Contractor in accordance with the provisions of this contract and all moneys expended and costs and expenses incurred by the Government shall continue to be treated as if the same had been advanced to the Contractor and expended by him, all in accordance with the provisions of this contract and as if there had been no such entry. Following such entry, rental shall be paid to the Contractor for such equipment as he may own and which the Government may retain at the same rates as may have been agreed upon pursuant to Section 1 d, Article II.

3. Upon the termination of this contract, full and complete settlement of all claims of the Contractor arising out of this contract shall be made as follows:

a. The Government shall assume and become liable for all obligations, commitments, and claims that the Contractor may have theretofore in good faith undertaken or incurred in connection with said work, the cost of which would be reimbursable in accordance with the provisions of this contract; and the Contractor shall, as a condition of receiving the payments mentioned in this article, execute and deliver all such papers and take all such steps as the Contracting Officer may require for the purpose of fully vesting in the Government the rights and benefits of the Contractor under such obligations or commitments.

b. The Government shall reimburse the Contractor for all expenditures made in accordance with Article II and not previously reimbursed.

c. The Government shall reimburse the Contractor for such further expenditures after the date of termination for the protection of Government property and for accounting services in connection with the settlement of this contract as are required or approved by the Contracting Officer.

d. The Government shall pay to the Contractor any unpaid balance for the rental of the Contractor's equipment in accordance with Section 1 d, Article II to date of termination.

e. If the Contract is terminated for the convenience of the Government, the Contractor may have the temporary use of any materials, tools, equipment, and supplies owned by the Government necessary to complete any well which may then be drilling if, in the opinion of the Contractor, to discontinue the drilling of any such well would result in injury or damage to such well or to any oil or gas bearing formations. In the event the Contractor elects to continue to drill any such well, the Contractor shall save harmless the Government from all costs, expenses, and damages resulting from the temporary use of Government property and from the continuance of the drilling of any such well.

f. Notwithstanding the termination of this contract, the Government will continue to look solely to oil and/or other products produced or caused to be produced in the Dominion of Canada by the Contractor from wells drilled under the provisions of this contract for repayment of all monies expended and costs and expenses incurred by the Government and recoverable from the Contractor under this contract; provided, that nothing contained in this contract shall preclude the Government and the Contractor from entering into a new agreement mutually satisfactory for the repayment of all monies expended and costs and expenses incurred by the Government under the provisions of this contract.

g. The obligation of the Government to make any of the payments required by this Article shall be subject to any unsettled claims in connection with this contract which the Government may have against the Contractor.

4. Prior to final settlement, the Contractor shall furnish a release as required in Section 5 of Article III hereof.

5. Upon completion of the work and services contracted for hereunder title and possession to such portion of the physical property acquired hereunder and then extant, as to which the Government shall have been reimbursed under the provisions of Section 10 of Article I, shall, if, and/or to the extent the contractor agrees to accept the same, be delivered to the Contractor in its then condition; provided further, that as to any physical property owned by the Government for which it has not been reimbursed the Government and the Contractor shall, if possible, agree on a price at which the Contractor will purchase such physical property and in such case the amount held by the Government to the credit of the Contractor under Sections 2 and 10 of Article I hereof shall be applied on such purchase price and if the amount standing to the credit of the Contractor is in excess of such purchase price, such excess shall be paid to the Contractor; and provided further that if the Government and the Contractor do not so agree on a price for such physical property, then the amount standing to the credit of the Contractor under said Sections 2 and 10 of Article I hereof shall be paid to the Contractor.

ARTICLE VII—CONTRACTING OFFICER'S DECISIONS AND DISPUTES

1. The extent and character of the work to be done by the Contractor shall be subject to the general supervision, direction, control, and approval of the Contracting Officer to whom the Contractor shall report and be responsible. All disputes arising under this contract shall be decided by the Contracting Officer, whose decision shall be in writing, subject to written appeal by the Contractor within ninety (90) days to the Secretary of War or his duly authorized representative, whose decision shall be final and conclusive upon the parties hereto. In the meantime, the Contractor shall diligently proceed with the work and services as directed.

ARTICLE VIII—CONVICT LABOR

The Contractor shall not employ any person undergoing sentence of imprisonment at hard labor.

ARTICLE IX—LABOR

1. Except as otherwise herein provided or required by law, or unless varied in writing by the Contracting Officer, the Contractor or his subcontractor shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at the time of payment computed at wage rates not less than those approved by the Contracting Officer for the work herein specified and stated in the attached schedule of minimum wage

rates, regardless of any contractual relationship which may be alleged to exist between the Contractor, subcontractor, and such mechanics and laborers.

2. *Anti-Discrimination.*—*a.* The Contractor in performing the work required by this contract shall not discriminate against any worker because of race, creed, color, or national origin.

b. The Contractor agrees that Paragraph (a) above will be inserted in all of his subcontracts.

3. Notwithstanding any provision in this contract, or the absence of any provision in this contract, the Contractor shall not be relieved from complying with all applicable laws of the place where the work and services are being performed pertaining to labor.

ARTICLE X—WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

During the life of this contract the Contractor will provide and maintain, for all employees of the Contractor engaged in work under this contract, Workmen's Compensation Insurance or such other protection for employees as may be required by the laws of the Dominion of Canada or political subdivisions thereof in the jurisdiction in which such work is performed under direction of the Contracting Officer. If the whole or any part of the work under this contract is sublet on a Fixed-Fee basis, the same protection provided for employees of the Contractor will be provided for the protection of the employees of the subcontractors. In those cases where the whole or any part of the work under this contract is sublet on a Lump Sum basis, the Contractor will require the subcontractors to maintain for their employees Workmen's Compensation Insurance or such other protection for employees as may be required by the laws in the jurisdiction in which such work is performed. Prior to commencement of operations under this contract the Contractor will supply the Contracting Officer with proof of compliance with this Article.

ARTICLE XI—ACCIDENT PREVENTION

In order to protect the life and health of his employees in the performance of this contract, the Contractor will comply with all pertinent and applicable provisions of the "Safety Requirements in Excavation—Building—Construction" approved by Chief of Engineers December 16, 1941 (a copy of which is on file in the Office of the Contracting Officer), and as may be amended, and will take or cause to be taken such additional measures as the Contracting Officer may determine to be reasonably necessary for this purpose. The Contractor will maintain an accurate record of, and will report to the Contracting Officer in the manner and on the forms prescribed by the Contracting Officer, all cases of death, occupational disease, and traumatic injury arising out of or in the course of employment on work under this contract.

The Contracting Officer will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall, after receipt of such notice, immediately correct the conditions to which attention has been directed. Such notice when served on the Contractor or his representative at the site of the work shall be deemed sufficient for the purpose aforesaid. If the Contractor fails or refused to comply promptly, the Contracting Officer may issue an order stopping all or any part of the work. When satisfactory corrective action is taken, a start order will be issued.

ARTICLE XII—NOTICE TO GOVERNMENT OF LABOR DISPUTES

Whenever an actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract the Contractor will immediately give notice thereof to the Contracting Officer. Such notice shall include all relevant information with respect to such dispute.

ARTICLE XIII—OFFICIALS NOT TO BENEFIT

No Member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE XIV—COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that he has not employed any person to solicit or secure this contract upon any agreement for a commission, percentage, brokerage, or contingent fee. Breach of this warranty shall give the Government the right to terminate the contract, or in its discretion, to deduct from payments due the Contractor the amount of such commission, percentage, brokerage, or contingent fee. This warranty shall not apply to commissions payable by Contractors upon contracts or sales secured or made through bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

ARTICLE XV—CONTRACTOR'S ORGANIZATION AND METHODS

Upon the execution of this contract, the Contractor shall submit to the Contracting Officer a chart showing in general the executive and administrative organization, duties and personnel to be employed in connection with the work under the contract; the data so furnished shall be supplemented as additional information becomes available.

ARTICLE XVI—LOADING AND UNLOADING CARS

The Contractor shall load promptly all railroad cars furnished for loading upon his order and shall unload from railroad cars promptly upon arrival all shipments consigned to him, and shall provide storage facilities and other facilities necessary for these purposes; and the Contractor shall not order railway cars for loading unless they can be loaded promptly and shall not cause or permit shipments to be consigned to him unless they can be unloaded from railroad cars promptly upon arrival.

ARTICLE XVII—ASSIGNMENT OF CLAIMS

Neither this contract, nor any interest therein, or claim thereunder, shall be assigned or transferred by the Contractor to any other party or parties.

ARTICLE XVIII—RENEGOTIATION

Renegotiation Pursuant to Section 403 of the Sixth Supplemental National Defense Appropriation Act, 1942—

(a) It is understood and agreed by and between the parties hereto that after operations under the contract have been performed, the Contractor shall, upon request by the Government, renegotiate the contract terms in the sense that both parties hereto shall endeavor to effect such adjustment thereof as may be equitable and mutually agreed upon by them. Such renegotiation shall be effected on or about a year from the date of this contract.

(b) The Contractor will include in each fixed price or lump sum subcontract made under this contract for an amount in excess of \$100,000, the following provisions:

ARTICLE—1. Renegotiations pursuant to Section 403 of the Sixth Supplemental National Defense Appropriation Act, 1942—

(1) Upon the written demand of the Secretary, at such period or periods when, in the judgment of the Secretary, the profits accruing to the Subcontractor under this contract can be determined with reasonable certainty, the Secretary and the Subcontractor will renegotiate the contract price to eliminate therefrom any amount found as a result of such renegotiation to represent excessive profits. The demand of the Secretary shall fix a place for renegotiation and a time for the commencement thereof not later than one year after the date of completion or termination of this contract as found by the Secretary.

(2) The Subcontractor will furnish to the Secretary such statements of actual costs of production and such other financial statements, at such time and in such form and detail as the Secretary may prescribe, and will permit such audits and inspections of its books and records as the Secretary may request.

(3) Any amount of the contract price found as a result of such renegotiation to represent excessive profits shall as directed by the Secretary—

(A) Be deducted by the Contractor from payments otherwise due to the Subcontractor under this contract; or

(B) Be paid by the Subcontractor directly to the Government.

(4) The Subcontractor agrees that the Contractor shall not be liable to the Subcontractor for or on account of any amount paid to the Government by the Subcontractor or deducted by the Contractor from payments otherwise due under this contract, pursuant to directions from the Secretary in accordance with the provisions of this Article. Under its contract with the Government, the Contractor is obligated to pay or credit to the Government all amounts withheld by it from the Subcontractor hereunder.

(5) As used in this Article—

(A) The term "Secretary" means the Secretary of War or any duly authorized representative of the Secretary, including the Contracting Officer.

(B) The terms "renegotiate" and "renegotiation" have the same meaning as in section 403 (b) of the Sixth Supplemental National Defense Appropriation Act, 1942.

(C) The term "this contract" means this contract as modified from time to time.

(e) In any such subcontract by which the Subcontractor undertakes to supply to the Contractor the same articles or articles which the Contractor is required to deliver to the Government under this contract, the Contractor will also include, in addition to sections (1) to (5) required by section (d), the following provision:

(6) The Subcontractor agrees (a) to include in each fixed-price or lump-sum subcontract hereunder for an amount in excess of \$100,000 the foregoing sections (1) to (5) inclusive, and (b) to make no subdivisions of any contract or subcontract for the purpose of evading the provisions of this section, and (c) to repay to the Government the amount of any reduction in the contract price of any such contract which results from renegotiation thereof by the Secretary and which the Secretary directs the Subcontractor to withhold from payments otherwise due under such contract and actually unpaid at the time the Subcontractor receives such directions.

(f) (1) The Contractor agrees to make no subdivisions of any contract or subcontract for the purpose of evading the provisions of this Article.

(2) If any renegotiation between the Secretary and any Subcontractor pursuant to the provisions required by section (d) hereof results in a reduction of the contract price of the subcontract, the Government shall retain from payments otherwise due to the Contractor under this contract, or the Contractor shall repay to the Government, as the Secretary may direct, the amount of such reduction which the Secretary directs the Contractor to withhold from payments otherwise due to the Subcontractor under the subcontract and actually unpaid at the time the Contractor receives such direction.

(g) As used in this Article—

(1) The term "Secretary" means the Secretary of War or any duly authorized representative of the Secretary, including the contracting officer.

(2) The term "subcontract" includes any purchase order from, or any agreement with, the Contractor (i) to perform all or any part of the work to be done under this contract, or to make or furnish all or any part of any articles or structures covered by this contract, (ii) to supply any services required directly for the production of any articles or structures covered by this contract, or any component part thereof, not including services for the general operation of the Contractor's plant or business, (iii) to make or furnish any articles destined to become a component part of any article covered by this contract, or (iv) to make or furnish any articles acquired by the Contractor primarily for the performance of this contract, or this contract and any other contract with the United States. The term "articles" includes any supplies, materials, machinery, equipment, or other personal property.

(3) The terms "renegotiate" and "renegotiation" have the same meaning as in section 403 (b) of the Sixth Supplemental National Defense Appropriation Act, 1942.

(4) The term "this contract" means this contract as modified from time to time.

ARTICLE XIX—DEFINITIONS

1. The term "Chief of Supply Arm or Service" shall mean the Chief of Engineers, or his duly authorized representative.

2. The term "Chief of Engineers" shall include his duly authorized representative.

3. The term "his duly authorized representative" shall mean any person authorized by the Secretary of War or the Chief of the Supply Arm or Service, as the case may be, to act for him, other than the Contracting Officer.

4. For the original signing of this contract and modification thereof, the term "Contracting Officer" as used herein shall be deemed to include the Contracting Officer in the Office of the Chief of Engineers appointed for that purpose by the Chief of Engineers. For all other purposes, the term "Contracting Officer" shall mean the District Engineer of the United States Engineer District in which the contract work is being performed, his successor or duly authorized representative.

5. The term "construction plant" shall include any part thereof.

6. The measure "barrel" shall mean 42 United States gallons containing 231 cubic inches per gallon.

7. The terms "work" and "work and services" shall include all matters and things necessary to accomplish the work and services, including oil and other products produced or obtained from any wells drilled and operated under this contract.

8. The term "equipment" shall include any equipment, machinery, construction plant, materials, and supplies, or any part thereof, necessary to accomplish the work and services under this contract.

9. The terms "wells" or "said wells" include all oil wells drilled under the provisions of this contract.

ARTICLE XX—APPROVAL REQUIRED

This contract shall be subject to the approval of the Secretary of War and shall not be binding unless so approved.

ARTICLE XXI—ALTERATIONS

The following changes were made in this contract before it was signed by the parties hereto:

ARTICLE XVIII was revised as indicated on pages 24 to 26, and various typographical errors and omissions were corrected by insertions in pen and ink.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written:

THE UNITED STATES OF AMERICA,
By O. P. EASTERWOOD, Jr.,
Captain, Corps of Engineers,
Contracting Officer.

[SEAL]

IMPERIAL OIL LIMITED,
Contractor.

By. C. A. EAMES,
Vice President.

T. F. EDGERTON,
Assistant Secretary.

Witnesses as to signature of Contractor:

V. B. SCHLUETER,
56 Church St., Toronto.
J. A. NEW,
56 Church St., Toronto.

CERTIFICATION

I, John Alfred New, do hereby certify that I am duly a qualified Asst. Secy. of the Corporation named herein as Contractor; that C. A. Eames who signed this contract on behalf of the Contractor was then a Vice President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of the Imperial Oil Limited this 10th day of August 1942.

[CORPORATE SEAL]

J. A. NEW,
Assistant Secretary.

EXHIBIT No. 1088

W. D. Contract Form No. 3.
Contract No. W-2385-Eng-34.
Negotiated. T. W.

FIXED FEE CONSTRUCTION CONTRACT

WAR DEPARTMENT

Contractor and address: Noble Drilling Corporation, 209 Philcade Building, Tulsa, Oklahoma.

Contract for construction of: Wildcatting and production oil wells.

Location: MacKenzie River District, N. W. T.

Fixed Fee: \$290,000.00.

Estimated construction cost exclusive of fixed fee: \$5,800,000.00 payable in U. S. currency.

Payment: To be made by Finance Officer, U. S. Army, at: Edmonton, Alberta, Canada.

The supplies and services to be obtained by this instrument are authorized by, are for the purposes set forth in, and are chargeable to the following procurement authorities, the available balances of which are sufficient to cover the cost of the same: Eng 30403 P430-99 A-0905-23.

This contract is authorized by the following laws: Act of July 2, 1940 (Public Law No. 703 76th Congress) as amended by Act approved June 30, 1941 (Public Law 139, 77th Congress); Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354, 77th Congress), and Executive Order No. 9001, dated December 27, 1941.

Approval recommended March 3, 1943.

E. REYBOLD,
Major General, Chief of Engineers.

Approved: March 24, 1943.

By direction of the Under Secretary of War:

ALBERT J. BROWNING,
Colonel, G. S. C.,
Director, Purchases Division.

FIXED FEE CONSTRUCTION CONTRACT

THIS CONTRACT, entered into this twenty-fifth day of September, Nineteen Hundred and Forty-two, by the UNITED STATES OF AMERICA (hereinafter called the Government) represented by the Contracting Officer executing this contract, and NOBLE DRILLING CORPORATION, a corporation organized and existing under the laws of the State of Delaware (hereinafter called the Contractor), WITNESSETH THAT:

WHEREAS, the Government desires to engage the services of a Contractor to perform the work and services hereinafter set forth; and

WHEREAS, the accomplishment of the said work under a fixed-fee contract entered into after negotiations approved by the Secretary of War, and without advertising for proposals, is authorized by law and will facilitate the prosecution of the war, and

WHEREAS, as a result of such negotiations, the Secretary of War has directed that the Government enter into a fixed-fee contract with the Contractor for the accomplishment of the said work:

Now, THEREFORE, the parties hereto do mutually agree as follows:

ARTICLE I—STATEMENT OF WORK

1. The Contractor shall, in the shortest possible time, furnish the labor, materials, tools, machinery and equipment, facilities, supplies not furnished by the Government, and services and do all things necessary for the completion of the following work:

Item I.—The drilling of One Hundred (100) oil wells, ranging in depth from 600 to 7,000 feet, for either the discovery or the production of petroleum in the MacKenzie River District, N. W. T. The field of operations will be limited to that area bounded on the north by the Arctic Ocean; on the east by

the 112th Meridian; on the south by the 60th parallel; and on the west by the Continental Divide to the Alaskan-Canadian border, the Alaskan-Canadian Border to the point of intersection with the Yukon River; the Yukon River to its confluence with the Porcupine River; the Porcupine River to its point of intersection with the Alaskan-Canadian border; and the Alaskan-Canadian border to the Arctic Ocean.

Item II.—To arrange for the procurement of seven (7) portable drilling rigs and appurtenant equipment, including casing, drill pipe, tools, materials and supplies, winterized as necessary, for operation in the vicinity of the Arctic Circle in the MacKenzie River District, and in sufficient quantities to drill a minimum of One Hundred (100) holes at depths varying between 600 and 7,000 feet, but averaging approximately 3,200 feet in depth.

all in accordance with the drawings and specifications or instructions contained in Appendix "A", hereto attached and made a part hereof, or to be furnished hereafter by the Contracting Officer at the site of the work and subject in every detail to his supervision, direction and instructions.

Operations of Contractor in carrying out the work described in this Article, shall be under the direction of the resident representative of Contracting Officer at site of the work.

2. It is estimated that the construction cost of the work listed in Section 1 of this Article will be Five Million Eight Hundred Thousand Dollars (\$5,800,000.00), exclusive of the Contractor's fee, and that the work herein contracted for will be ready for utilization by the Government on or before December 31, 1943. It is expressly understood, however, that neither the Government nor the Contractor guarantee the correctness of either of these estimates. In consideration of his undertaking under this contract the Contractor shall receive the following:

a. Reimbursement for expenditures as provided in Article II.

b. Rental for Contractor's equipment as provided in Article II.

c. A fixed-fee in the amount of Two Hundred Ninety Thousand Dollars (\$290,000.00), which shall constitute complete compensation for the Contractor's services including profit and all general overhead expenses.

3. When in the opinion of the Contracting Officer it is to the best interest of the Government, the Contractor shall when so ordered or authorized, subcontract any or all items or classifications of work required under this contract or subsequently added thereto. Such subcontracting of work, or the performance thereof with the Contractor's own forces, regardless of the amount and/or extent of work performed or subcontracted, all with the prior written approval or order of the Contracting Officer, shall entail no adjustment in the fixed fee stipulated in Section 2 c of this Article. The fixed fee stipulated in Section 2 c of this Article has been determined in the light of the fact that all of the work may be subcontracted pursuant to the foregoing provision. Such fee includes compensation for the services which may be rendered by the Contractor in the negotiation, supervision, and coordination of any work subcontracted and the responsibilities assumed by the Contractor in connection therewith, and is deemed to be reasonable, regardless of the amount or extent of work performed or subcontracted.

4. The Contracting Officer may at any time by written order issue additional instructions, require additional work or services, or direct the omission of work or services covered by this contract. If such changes cause a material increase or decrease in the amount or character of the work to be done under this contract, an equitable adjustment of the amount of the fixed fee to be paid the Contractor shall be made and the contract shall be modified in writing accordingly. Any claim for adjustment under this Article must be asserted within 10 days from the date the change is ordered. Nothing provided in this Article shall excuse the Contractor from proceeding with the prosecution of the work so changed. There shall be no adjustment in the amount of the fixed fee as provided herein, nor any claim therefor because of any errors and/or omissions made in computing the estimated cost of the construction of the work under this contract or where the actual cost varies from the estimated cost.

ARTICLE II—COST OF THE WORK

1. *Reimbursement for Contractor's Expenditures.*—The Contractor shall be reimbursed in the manner hereinafter described for such of his actual expenditures in the performance of the work as may be approved or ratified by the Contracting Officer and as are included in the following items:

a. All labor, materials, tools, machinery, equipment, supplies, services, utilities, power, and fuel necessary for either temporary or permanent use for the benefit of the work.

b. All subcontracts made in accordance with the provisions of this contract.

Rental actually paid by the Contractor at rates not to exceed those approved by the Contracting Officer, for construction plant in sound and workable condition exceeding Three Hundred Dollars (\$300.00) in value as may be necessary for the proper and economical prosecution of the work.

c. Each contract for the rental of construction plant or parts thereof by the Contractor from third parties shall be in a form prescribed by the Contracting Officer in accordance with existing law and regulation, and shall be subject to the approval of the Contracting Officer.

d. Unloading and assembling at the site of the work of construction plant owned or rented by the Contractor or the Government; transportation thereof to the place or places where it is to be used in connection with said work, dismantling, unloading, and return transportation to the point of original shipment or equivalent mileage, but in no event will the payment made for return transportation exceed the payment made for transportation to the job site unless such excess cost results solely from an increase of freight rates, or unless such original transportation was furnished by the Government, or is required by Government transfer of such equipment to another site more distant from the point of origin than the sites of the work set out in Article I hereof.

e. Repairs and repair parts as are not included in the rental or are not made necessary by the fault or negligence of the Contractor or his employees.

f. Transportation charges on materials and supplies.

g. Transportation and traveling expenses to and from the work site of the necessary field forces for the economical and successful prosecution of the work; expenses of procuring labor and expediting the production and transportation of material and equipment. Expenditures under these items must have the written authorization or ratification of the Contracting Officer.

h. Salaries of resident engineers, superintendents, timekeepers, foremen, and other field employees of the Contractor in connection with the work. In case the full time of any field employee of the Contractor is not applied to the work, his salary shall be included in this item only in proportion to the actual time applied thereto. No person shall be assigned to service by the Contractor as superintendent of construction, chief engineer, chief purchasing agent, chief accountant, or similar position in the Contractor's field organization, or as principal assistant to any such person, until there has been submitted to and approved by the Contracting Officer a statement of the qualifications, experience, and salary of the person proposed for such assignment. The regular salary or compensation rate of any such person shall not be in excess of the highest salary or compensation rate received by him during the year preceding the date of this contract plus such increase as the Contracting Officer may approve. The payment of any excess salary over such scheduled amounts shown in the approved salary schedule, Appendix C, attached hereto and made a part hereof shall not be reimbursable, unless and until the Contracting Officer has so approved in writing. In no case shall the salary of any employee of Contractor exceed the sum of Nine Thousand Dollars (\$9,000.00) per annum, which sum shall be subject to the approval of the Secretary of War.

i. Buildings, trade fixtures and equipment required for necessary field offices, commissaries, hospitals, and other facilities, and the cost of maintaining and operating such field offices, commissaries, hospitals, and other facilities; provided that the Contractor may enter into a contract with any third party or parties for the operation of the commissaries, hospitals, or other facilities provided for herein, in which event such contract shall be reduced to writing and the terms thereof subject to the prior written approval of the Contracting Officer.

j. Temporary rights in land required in connection with the work.

k. Premiums on such bonds and insurance policies as Contracting Officer may approve or require as reasonably necessary for the protection of the Government or the Contractor. In every instance where this contract requires or permits the United States to pay the premium on a bond or insurance policy either directly or ultimately as a reimbursable item, the bond or insurance policy shall contain an indorsement or other recital excluding by appropriate language any claim on the part of the insurer or obligor to be subrogated on payment of a loss or otherwise, to any claim against the United States.

l. Losses and expenses, not compensated by insurance or otherwise (including settlements made with the written consent of Contracting Officer), actually

sustained by the Contractor in connection with the work and found and certified by Contracting Officer to be just and reasonable unless reimbursement therefor is expressly prohibited.

m. The cost of reconstructing and replacing any of the work destroyed or damaged, and not covered by insurance, but expenditures under this item must have the written authorization of Contracting Officer in advance.

n. Payments from his own funds made by the Contractor under the Social Security Act, and any disbursements required by law, which the Contractor may be required on account of this contract to pay on or for any plant, equipment, process, organization, materials, supplies, or personnel; and, if approved in writing by Contracting Officer in advance, permit and license fees and royalties on patents used, including those owned by the Contractor. In the event the Contractor is required to pay any tax on or because of the fixed fee earned by the Contractor hereunder under the laws of the Dominion of Canada or its political subdivisions, the amount of such tax shall be a reimbursable item under this contract.

o. If the Contractor and/or his representative shall be required to travel, the Government will reimburse the Contractor for the transportation, including Pullman where necessary, and will allow for such travel Six Dollars (\$3.00) per day in lieu of all other expenses. Transportation by automobile on such required travel shall be reimbursed at the rate of Five Cents (\$.05) per mile as representing the actual cost of such transportation.

All travel shall be either authorized or approved in writing by the Contracting Officer. Should the Contractor, or any representative thereof, remain in a travel status in excess of six (6) days at any one time, not including the time consumed in travel, the cost for such excess travel status shall be at the expense of the Contractor, unless otherwise ordered in writing by the Contracting Officer.

p. When specifically approved in advance by Contracting Officer, a reasonable allowance for work done in the Contractor's general offices exclusively for and directly chargeable to the work.

q. Disbursements incident to payment of pay rolls, including but not limited to the cost of disbursing cash, necessary guards, cashiers, and paymasters. If payments to employees are made by check, facilities for cashing checks and exchanging American or Canadian currency must be provided without expense to employees, and the Contractor shall be reimbursed therefor.

r. Such other items not expressly excluded by other provisions of this contract as should, in the opinion of Contracting Officer, be included in the cost of the work. When such an item is allowed by the Contracting Officer, it shall be specifically certified as being allowed under this Subsection.

s. All expenditures for which reimbursement has not been made pursuant to Letter Contract dated September 25, 1942, and amendment thereto dated November 26, 1942, copies of which are attached hereto and made a part hereof. Such Letter Contract and amendment thereto are hereby merged and superseded by this contract. This Subsection r. shall be deemed to be included herein if and only if this contract is preceded by a Letter Contract.

2. Rental for Construction Plant owned by Contractor:

a. Rental shall be paid to the Contractor for construction plant in sound and workable condition, owned and furnished by him for the proper and economical prosecution of the work as shown in the attached "Appendix B" hereby made a part hereof, at rental rates prescribed by the Under Secretary of War in "Uniform Rental Rates for Contractor-Owned Construction Plant," August 27, 1941, and any amendments thereto.

b. In the event the Contractor, with the approval of the Contracting Officer, furnishes equipment that is not included in "Appendix B," rental for such equipment will be paid in accordance with the said "Uniform Rental Rates for Contractor-Owned Construction Plants."

c. Except as otherwise specified herein, rental shall begin on the date of delivery of the construction plant to a common carrier for shipment to the site of the work, as evidenced by bill of lading or other satisfactory evidence covering such shipment. In the event the construction plant is conveyed by the Contractor, the rental shall start at the time transportation to the site begins; however, the rental paid shall not exceed that for the equivalent time of shipment by common carrier.

d. If such construction plant is not in sound and workable condition, to the satisfaction of the Contracting Officer, when delivered at the site of the work, the rental period therefor shall not begin until the construction plant shall have been placed in sound and workable condition at the expense of the Contractor, and rental therefor shall not be paid for any prior period.

e. If such construction plant cannot be placed in sound and workable condition within reasonable time to the satisfaction of Contracting Officer, no transportation charges for the shipment thereof, to or from the site of the work, shall be paid.

f. The approved value of the construction plant mentioned in paragraph b. of this Article shall be deemed binding unless the Contracting Officer shall, within twenty days after such plant has been set up and working, modify or change such valuation. In the event a change is made in the valuation of the construction plant, a corresponding change shall be made in the rental rate in accordance with said "Uniform Rental Rates for Contractor-Owned Construction Plant." Thereafter the valuation and the related rental rate shall be binding unless the rental is modified as specified below.

g. Furnish within 15 days of the date of the receipt of written notice from the Contracting Officer, construction plant referred to in paragraph b. of this Article, provided that the date upon which the Contractor is required to furnish such plant shall not precede the date on which such construction plant is said to be available. In the event the Contractor fails to furnish construction plant as required by such notice, the additional cost of acquiring replacement construction plant from any source other than the Contractor shall be paid by the Contractor and shall not be a reimbursable expenditure.

h. Rental for time consumed for repairs, in excess of the time normally required for such repairs as determined by the Contracting Officer, shall be deducted from the rental in the amount of one-thirtieth of the monthly rental rate for each day determined to be in excess. When in the opinion of the Contracting Officer the amount of repairs or maintenance is excessive, a deduction shall be made from the rental.

i. The payment of rental shall cease on a date to be established in a written notice by the Contracting Officer to the Contractor, that the Construction plant is no longer required. The date of release thus established shall include an allowance for the time necessary for final repairs, dismantling and loading for shipment.

General.

3. Title to all materials, tools, machinery, equipment and supplies for which the Contractor shall be entitled to reimbursement under Article II shall vest in the Government at such point or points as the Contracting Officer may designate in writing; provided that the right of final inspection and acceptance or rejection of such materials, tools, machinery, equipment, and supplies at such place or places as he may designate in writing is reserved to the Contracting Officer; provided further that, upon such final inspection, the Contractor shall be given written notice of acceptance or rejection as the case may be. In the event of rejection, the Contractor shall be responsible for the removal of the rejected property within a reasonable time.

4. The work shall be executed in the best and most workmanlike manner by qualified, careful, and efficient workers, in strict conformity with the best standard practices.

5. Except as otherwise authorized by the Contracting Officer, all materials shall be of the best quality of their respective kinds. If the Contracting Officer requires that the Contractor submit for prior approval samples of materials proposed for use in the work covered by this contract, the Contractor shall make no commitments for such materials until the submitted sample has been approved by a representative of Contracting Officer.

6. The transportation for the movement of the equipment, materials, and supplies incidental to the prosecution of the work being performed under the terms of this contract, including the construction of the necessary roads and trails, will be furnished to Contractor by Government without cost to Contractor.

7. Radio communication for detached drilling crews at drill-hole sites remote from vicinity of Norman Wells will be furnished by Government without cost to Contractor.

8. It is mutually recognized that there are details relative to employment of labor and personnel with reference to payment of wages and salaries, and allotments thereof, insurance and other matters which will be covered by separate agreements to be entered into between the Contractor and its employees. Such employment contracts will be advantageous in the accomplishment of the work and services under this contract and the Contractor may, subject to the written approval of the Contracting Officer, enter into such agreement or agreements of employment not inconsistent with any of the express provisions of this con-

tract as may be deemed necessary or desirable. All disbursements under the provisions of such approved employment agreements shall be considered as labor costs reimbursable under this contract.

9. Hospital facilities for hospitalization of Contractor's employees engaged in work north of Edmonton, Alberta, will be furnished by Government without cost to Contractor. The above-mentioned facilities shall be regulated and approved by Contracting Officer.

10. During the performance of this contract the work shall be under the full-time resident direction of the Contractor, if an individual; of one or more principal partners if the Contractor is a partnership; or in case the Contractor is a corporation, association, or similar legal entity, one or more senior officers thereof; provided, however, that the Contractor, whether an individual, a partnership, a corporation, or other legal entity, may be represented in the direction of the work by some person of a class other than those specified above, if the Contracting Officer gives his approval. In any event, the Contractor shall not be entitled to be reimbursed for any salary, wages, or like compensation paid for such direction of the work, whether performed by an individual, a partner, a corporate officer, or other representative.

11. The Government reserves the right to furnish any materials, construction equipment, machinery, tools, or services, including communication services necessary for the completion of the work. The Contractor shall cause all equipment, machinery, and tools to which title is vested in the Government to be suitably marked with an identifying mark or symbol indicating that such items are the property of the United States. The Contractor shall maintain at all times, in a manner satisfactory to the Contracting Officer, records showing the disposition and/or use of all equipment, machinery, tools, and materials purchased for the work and for which he has been reimbursed by the Government or which have been furnished by the Government. Upon the completion of this contract or upon demand, the Contractor shall return such equipment, machinery, tools, and unused materials to the place designated by the Contracting Officer.

12. a. The Government reserves the right to pay directly to common carriers any or all freight or transportation charges on construction plant, materials, and supplies.

b. The Government will pay directly for all telegraphic communications (including teletype and facsimile when authorized by the Contracting Officer to be installed), cablegrams, radiograms, and similar messages that may be sent by the Contractor pertaining directly to the contract for work to be done or materials to be furnished thereunder, and the Contractor is hereby designated as an agent of the Government for the purpose of causing to be transmitted any such messages.

13. The Government reserves the right to pay directly to the persons concerned all sums due from the Contractor for labor, materials, or other charges.

14. No salary of the Contractor, partners, or corporate officers of the Contractor's organization shall be included in the cost of the work. No part of the expense incurred in conducting the Contractor's main office or regularly established branch offices, and no overhead expense of any kind, except as specifically authorized in Section 1 of this Article, shall be included in the cost of the work; nor shall any interest on capital employed or on borrowed money be included in the cost of the work.

15. If the Contractor fails to pay for labor, materials, or other charges, the Government reserves the right to pay directly to the persons concerned all sums due from the Contractor for labor, materials, and other charges.

16. Time is of the essence of this contract, and for the purpose of facilitating the early completion of the work to be done hereunder and insofar as work under this contract in the Dominion of Canada is concerned, the Government does hereby waive all Interdepartmental Regulations, as contrasted with laws, ordinarily applicable within the United States but inconsistent with the provisions of this contract which waiver will hasten the completion of the project.

17. The Contractor shall, to the extent of his ability, take all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and benefactions, and when unable to take advantage of such benefits he shall promptly notify the Contracting Officer with the reason therefor. In determining the actual net cost of articles and materials of every kind required for the purpose of this contract, there shall be deducted from the gross cost thereof all cash and trade discounts, rebates, allowances, credits, commissions, and benefactions which have accrued to the benefit of the Contractor or would have so accrued but for the fault or

neglect of the Contractor. Such benefits lost through no fault or neglect on the part of the Contractor, or lost through fault of the Government, shall not be deducted from gross costs.

18. All revenue received by the Contractor from the operations of the hospital, commissaries, or other facilities, or from rebates, discounts, refunds, etc., shall be accounted for by the Contractor and, except for any reasonable compensation accruing to a third party or parties for the operation of commissaries, hospitals, or other facilities, applied in reduction of the cost of the work.

ARTICLE III—PAYMENTS

1. *Advance Payments.*—*a.* At any time and from time to time after the execution of this contract, the Government at the request of the Contractor and subject to the approval of Chief of Engineers or his duly authorized representative, or the person to whom authority to make advance payments has been delegated, as to the present need therefor shall advance to the Contractor, sums not to exceed thirty per centum (30%) of the estimated cost of the contract (exclusive of the Contractor's fixed-fee), as it may be amended from time to time. On the unliquidated balance of the advance payments outstanding, the Contractor agrees to pay interest at the rate of two and one-half per centum (2½%) per annum to be computed in accordance with the provisions of Subparagraph *f* hereof.

b. As a condition precedent to the making of any advance payment or payments as hereinbefore provided, the Contractor shall furnish the Government with such adequate security as the Under Secretary of War or the person to whom authority has been delegated to make advance payments shall prescribe: *Provided*, That, if other security is not prescribed, the terms of this contract shall be considered adequate security for such advance payments and *Provided, further*, If at any time the Under Secretary of War deems the security furnished by the Contractor to be inadequate, the Contractor shall furnish such additional security, in the form of a surety bond or surety bonds, as shall be satisfactory to the Under Secretary of War.

c. Until all advance payments hereunder are liquidated, all sums received as advance payments under this agreement, together with all funds received as reimbursements for the cost of the work under Article I of the contract, exclusive of the Contractor's fixed fee, shall be deposited in a special bank account or accounts at a member bank or banks of the Federal Reserve System or any "insured" bank within the meaning of the Act creating the Federal Deposit Insurance Corporation (Act of August 23, 1935; 49 Stat. 684, as amended; 12 U. S. C. 264) separate from the Contractor's general or other funds. Such special bank account or accounts shall be so designated as to indicate clearly to the bank their special character and purpose, and the balance in such account or accounts shall be used by the Contractor exclusively as a revolving fund for carrying out the purposes of the contract and any amendments thereto and not for other business of the Contractor. Any balances from time to time, in such special account or accounts, shall at all times secure the repayment of the advances in connection with which the special account or accounts are opened, and the Government shall have a lien upon such balances to secure the repayment of such advances, which lien shall be superior to any lien of the bank or any other person upon such account or accounts by virtue of assignment to it of such contract or otherwise; *Provided*: That the Bank shall be under no liability to any party hereto for the withdrawal of any funds from said special account upon checks, properly endorsed and signed by the Contractor, except that after the receipt by the bank of written directions from the Chief of Engineers or his duly authorized representative, the bank shall act thereon and be under no liability to any party hereto for any action taken in accordance with the said written directions. Any instructions or written directions received by the bank through the Contracting Officer upon War Department stationery and purporting to be signed by, or by the direction of, the Chief of Engineers or his duly authorized representative, shall, insofar as the rights, duties, and liabilities of the bank are concerned, be conclusively deemed to have been properly issued and filed with the bank by the Chief of Engineers or his duly authorized representative.

d. It is agreed that the aggregate of the advance payments authorized by this contract, together with funds received as reimbursement for the cost of the work by the Contractor under Article III of the contract, shall, at no time, exceed the total estimated cost of the work under the contract as it may be revised from time to time, and any such excess shall be immediately repaid by the Contractor to the Government or if any reimbursement is due from the Govern-

ment to the Contractor shall be deducted therefrom: *Provided*, however, that if the total cost of the work under the contract shall be in excess of the amount so paid to the Contractor, including said advance payments, the Government upon presentation of satisfactory evidence shall currently and promptly reimburse the Contractor to the extent of such excess cost (subject to any delay in the availability of appropriated funds).

e. If, upon completion of the contract, or upon the termination thereof for other than the fault of the Contractor, the advance payments made to the Contractor in respect of such contract have not been fully liquidated in the manner herein provided, the unliquidated balance of such advance payments shall be deducted from any payments otherwise due the Contractor in respect of such contract; and if the sum or sums due the Contractor be insufficient to cover such balance, the deficiency shall be paid by the Contractor in cash forthwith after demand and final audit by the Government of all accounts hereunder in respect of such contract. In the event of cancellation or termination of the contract because of the fault of the Contractor, the Contractor, notwithstanding any ultimate rights to be reimbursed, agrees to return to the Government, upon demand, without set-off of any sums alleged to be due the Contractor, the unliquidated balance of any advance payment. Furthermore, if, in the opinion of the Chief of Engineers or his duly authorized representative the unobligated balance of the advance payments made by the Government under Article I hereof exceeds the amount necessary for the current needs of the Contractor, as determined by the Chief of Engineers or his duly authorized representative, the amount of such excess shall, upon demand made by the Chief of Engineers or his duly authorized representative, be promptly returned to the Government and will be credited against the balance due the Government on advances previously made. If the demand made in any event set forth in this article is not met upon receipt of such demand by the Contractor, the amount demanded will bear interest at the rate of six percent (6%) rather than two and one-half percent (2½%) per annum from the date of the receipt of the demand until payment is made; *Provided*, however, that such additional interest over and above the regular two and one-half percent (2½%) is hereby waived as to any sums paid by the Contractor within 15 days after the amount becomes due hereunder. If and when the Contractor has, by means of deductions or otherwise, reimbursed the Government in full for payments made, any money remaining in the special bank account or accounts shall be free and clear of any lien hereunder and the bank or banks concerned shall have authority to pay same to the Contractor and shall thereupon be relieved of any further obligation to the Government on account thereof.

f. Subject to the approval of the Contracting Officer or his duly authorized representative the Contractor may make payments to subcontractors and materialmen in advance out of the special account for labor or services, or to pay for materials in advance of delivery at the site of the work or at an approved storage site. Such subadvances shall not exceed 30% of the subcontract price or estimated cost, as the case may be, and the subcontractor or materialmen to whom such advances are made shall furnish adequate security therefor. Unless other security is furnished, covenants in subcontracts, expressly made for the benefit of the Government, providing for a sub-special account with Government lien thereon and for a Government lien on or title to property, tangible or intangible, purchased from the special account, and imposing upon the subcontractor substantially the same duties and giving the Government substantially the same rights as are provided herein between the Government and the Contractor, have been prescribed by the Under Secretary of War as minimum adequate security for such subadvances.

2. *Reimbursement for cost.*—The Government will currently reimburse the Contractor for expenditures made in accordance with Article II upon certification to and verification by the Contracting Officer of the original signed payrolls for labor, the receipted invoices for materials, and such other documents as the Contracting Office may require. Generally, reimbursement will be made weekly but may be made at more frequent intervals if the conditions so warrant.

3. *Rental for Contractor's Equipment.*—Rental as provided in Article II for such construction plant or parts thereof as the Contractor may own and furnish shall be paid monthly upon presentation of proper vouchers.

4. *Payment of the Fixed-Fee.*—Ninety percent (90%) of the fixed-fee set out in Article I shall be paid as it accrues, in monthly installments based upon the percentage of the completion of the work as determined from estimates submitted to and approved by Contracting Officer. Final payment upon comple-

tion of the work and its final acceptance shall be made in accordance with Section 6. If the contract is terminated by the Government, payment shall be made in accordance with Article VI.

5. *Payments by Contractor.*—If bills for purchase of material, machinery, or equipment, or pay rolls covering employment or laborers or mechanics incurred by the Contractor or by any subcontractor hereunder are not paid promptly by the Contractor or subcontractor as the case may be, the Contracting Officer may, in his discretion withhold from payments otherwise due the Contractor an amount equivalent to the amount of any such bill or pay roll. Should the Contractor neglect or refuse to pay such bills or pay-rolls or to direct any subcontractor to pay such bills or pay-rolls within five (5) days after notice from the Contracting Officer so to do, the Government shall have the right to pay such bills or pay-rolls directly, and in such event a deduction equal to five percent (5%) of the amount so paid directly shall be made from the Contractor's fee.

6. *Final Payment.*—Upon completion of the work and its final acceptance in writing by the Contracting Officer, the Government shall pay to the Contractor the unpaid balance of the cost of the work determined under Article II hereof, and of the fee, less any sum that may be necessary to settle any unsettled claims in connection with this contract, or any claim the Government may have against the Contractor. The Contracting Officer shall accept the completed work with reasonable promptness. Prior to final payment and as condition thereto, the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of this contract other than such claims, if any, as are specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein.

ARTICLE IV—RECORDS AND ACCOUNTS INSPECTION AND AUDIT

1. The Contractor agrees to keep records and books of account, showing the actual cost to him of all items of labor, materials, equipment, supplies, services, and other expenditures of whatever nature for which reimbursement is authorized under the provisions of this contract. The system of accounting to be employed by the Contractor shall be such as is satisfactory to the Contracting Officer.

2. The Contracting Officer shall at all times be afforded proper facilities for inspection of the work and shall at all times have access to the premises, work, and materials, to all books, records, correspondence, instructions, plans, drawings, receipts, vouchers, and memoranda of every description of the Contractor pertaining to said work except such documents as have been submitted in support of reimbursement vouchers; and the Contractor shall preserve such papers without additional compensation therefor, for a period of three (3) years after completion or termination of this contract.

3. Any duly authorized representative of the Contractor shall be accorded the privileges of examining the books, records, and papers of the Contracting Officer relating to the cost of the work for the purpose of checking and verifying such cost.

4. In order to avoid so far as possible duplication in accounting and auditing functions performed by the Contractor and the Government, it is agreed that the following accounting and auditing functions shall be performed by the Government exclusively:

- a. Time checking (not time keeping) in the field, or in the Contractor's plant.
- b. Audit of original pay-rolls of the Contractor (or such portions thereof as are applicable), where such pay-rolls are prepared by the Contractor.*
- c. Checking of equipment rentals and the preparation and delivery of properly approved rental rolls to the Contractor for payment.**
- d. Such other accounting and auditing functions as may be effectively performed by Government employees and to which the Contracting Officer and the Contractor may mutually agree in writing.

5. It is further agreed that if any of the accounting and auditing functions performed exclusively by the Government do not adequately discharge such accounting and auditing functions to the satisfaction of the Contractor, the Contractor, with the approval in writing of the Contracting Officer, may perform

*Note: Where pay rolls are prepared by the Government the audit thereof by the Government will be concurrent with such preparation.

**Note: If not applicable, this section will be omitted.

such additional checking and auditing as may be so approved. The Contractor shall be reimbursed for the cost of such additional accounting and auditing functions as are so approved.

ARTICLE V—SPECIAL REQUIREMENTS

1. The Contractor hereby agrees that he will:
 - a. Procure and maintain such bonds and insurance in such forms and in such amounts and for such periods of time as the Contracting Officer may require.
 - b. Procure all necessary permits and licenses; obey and abide by all applicable laws, regulations, ordinances, and other rules of the United States of America, of the State, Territory, Dominion of Canada, or political subdivision thereof wherein the work is done, or of any other duly constituted public authority.
 - c. Reduce to writing, unless this provision is waived in writing by the Contracting Officer, every contract in excess of Five Thousand Dollars (\$5,000) made by him for the purpose of the work hereunder for services, materials, supplies, machinery, equipment, or for the use thereof; insert therein a provision that such contract is assignable to the Government; make all such contracts in his own name, and not bind or purport to bind the Government or the Contracting Officer thereunder. No purchase in excess of \$5,000 shall be made or placed without the prior approval of the Contracting Officer.
 - d. Enter into no subcontract for any portion of the work, except in the form prescribed by the Chief of Supply Arm or Service with the written approval of the Contracting Officer. Subcontracts are defined as contracts entered into by the Contractor with others which involve the performance, wholly or in part at the site of the work, of some part of the work described in Article I hereof.
 - e. At all times during the progress of the work, keep at the site thereof a duly appointed and qualified representative who shall receive and execute on the part of the Contractor such notices, directions, and instructions as the Contracting Officer may give.
 - f. The Contracting Officer may require the Contractor to dismiss from work such employee or employees as the Contracting Officer deems incompetent, careless, or insubordinate, or whose continued employment is deemed inimical by the Contracting Officer to the public interest. The Contractor shall make every reasonable effort in the selection of his employees and in the prosecution of the work under this contract, to safeguard plot drawings and schematic drawings furnished him and drawings and specifications, and to prevent the theft or unauthorized use of the same.
 - g. Furnish sufficient technical, supervisory, and administrative personnel to insure the prosecution of the work in accordance with a progress schedule approved by the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind a progress schedule approved by the Contracting Officer, the Contractor shall take such steps as may be necessary to improve his progress and the Contracting Officer may direct him to increase working days, or hours of labor per day. Failure to promptly comply with such directions shall be deemed sufficient cause to terminate the contract for the fault of the Contractor.
 - h. Immediately upon termination of third-party rental agreement, make all repairs to equipment rented thereunder which are required to be made by the terms of such rental agreements and remove such equipment from the site of the work. In cases where such repairs and removal cannot promptly be made, the Contractor shall notify the Contracting Officer of the reasons for such delay.

ARTICLE VI—TERMINATION FOR CONVENIENCE OF THE GOVERNMENT

1. The Government may terminate this contract at any time by a notice in writing from the Contracting Officer to the Contractor. Such termination shall be effective in the manner and upon the date specified in said notice and shall be without prejudice to any claims which the Government may have against the Contractor. Upon receipt of such notice, the Contractor shall, unless the notice directs otherwise, immediately discontinue all work and the placing of all orders for materials, facilities, and supplies in connection with performance of this contract and shall proceed to cancel promptly all existing orders and terminate all subcontracts insofar as such orders and/or subcontracts are chargeable to this contract.
2. If this contract is terminated for the fault of the Contractor, the Contracting Officer may enter upon the premises and take possession, for the purpose

of completing the work contemplated by this contract, of any or all materials, tools, machinery, equipment, and appliances which may be owned by or in the possession of the Contractor and all options, privileges, and rights, and may complete or employ any other person or persons to complete said work. Following such termination, rental shall be paid to the Contractor for such construction plant or parts thereof as he may own and which the Government may retain at rates prescribed in Section 2 of Article II.

3. Upon the termination of this contract, full and complete settlement of all claims of the Contractor arising out of this contract shall be made as follows:

a. The Government shall assume and become liable for all obligations, commitments, and claims that the Contractor may have theretofore in good faith undertaken or incurred in connection with said work, the cost of which would be reimbursable in accordance with the provisions of this contract; and the Contractor shall, as a condition of receiving the payments mentioned in this Article, execute and deliver all such papers and take all such steps as the Contracting Officer may require for the purpose of fully vesting in the Government, the rights and benefits of the Contractor under such obligations or commitments.

b. The Government shall reimburse the Contractor for all expenditures made in accordance with Article II and not previously reimbursed.

c. The Government shall reimburse the Contractor for such further expenditures after the date of termination for the protection of Government property and for accounting services in connection with the settlement of this contract as are required or approved by the Contracting Officer.

d. The Government shall pay to the Contractor any unpaid balance for the rental of the Contractor's equipment in accordance with Article II to date of termination.

e. If the contract is terminated for the convenience of the Government, the Contractor will be paid that proportion of the prescribed fee which the work actually completed bears to the entire work under this contract, less fee payments previously made. If the contract is terminated due to the fault of the Contractor, no additional payments on account of the fee will be made.

f. The obligation of the Government to make any of the payments required by this Article, or by Section 3, Article III of this contract, shall be subject to any unsettled claims in connection with this contract which the Government may have against the Contractor.

4. Prior to final settlement the Contractor shall furnish a release as required in Section 6 of Article III hereof.

ARTICLE VII—CONTRACTING OFFICERS DECISION

The extent and character of the work to be done by the Contractor shall be subject to the general supervision, direction, control and approval of the Contracting Officer to whom the Contractor shall report and be responsible.

ARTICLE VIII—DISPUTES

Except as otherwise specifically provided in this contract, all disputes concerning questions of fact which may arise under this contract, and which are not disposed of by mutual agreement, shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail a copy thereof to the Contractor at his address shown herein. Within 30 days from said mailing, the Contractor may appeal in writing to the Secretary of War, whose written decision or that of his designated representative or representatives thereon shall be final and conclusive upon the parties hereto. The Secretary of War may, in his discretion, designate an individual, or individuals, other than the Contracting Officer, or a board as his authorized representative to determine appeals under this Article. The Contractor shall be afforded an opportunity to be heard and offer evidence in support of his appeal. The president of the board, from time to time, may divide the board into divisions of one or more members and assign members thereto. A majority of the members of the board or of a division thereof shall constitute a quorum for the transaction of the business of the board or of a division, respectively, and the decision of a majority of the members of the board or of a division shall be deemed to be the decision of the board or of a division, as the case may be. If a majority of the members of a division are unable to agree on a decision or if within 30 days after a decision by a division, the board

or the president thereof directs that the decision of the division be reviewed by the board, the decision will be so reviewed, otherwise the decision of a majority of the members of a division shall become the decision of the board. If a majority of the members of the board is unable to agree upon a decision, the president will promptly submit the appeal to the Under Secretary of War for his decision upon the record. A vacancy in the board or in any division thereof shall not impair the powers, not affect the duties of the board or division nor of the remaining members of the board or division, respectively. A member of the board, or any examiner designated by the president of the board for that purpose, may hold hearings, examine witnesses, receive evidence and report the evidence to the board or to the appropriate division, if the case is pending before a division. Pending decision of a dispute hereunder the Contractor shall diligently proceed with the performance of this contract. Any sum or sums allowed to the Contractor under the provisions of this Article shall be paid by the United States as part of the cost of the articles or work herein contracted for and shall be deemed to be within the contemplation of this contract.

ARTICLE IX—WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

During the life of this contract the Contractor will provide and maintain, for all employees of the Contractor engaged in work under this contract, Workmen's Compensation and Employer's Liability Insurance or such other protection for employees as may be required by Federal or State Statutes of the United States of America, or by the laws of the Dominion of Canada or political subdivisions thereof in the jurisdiction in which such work is performed under direction of the Contracting Officer. If the whole or any part of the work under this contract is sublet on a Fixed-Fee Basis, the same protection provided for employees of the Contractor will be provided for the protection of the employees of the subcontractors. In those cases where the whole or any part of the work under this contract is sublet on a Lump Sum basis, the Contractor will require the subcontractors to maintain for their employees Workmen's Compensation and Employer's Liability Insurance or such other protection for employees as may be required by the laws in the jurisdiction in which such work is performed. Prior to commencement of operations under this contract the Contractor will supply the Contracting Officer with proof of compliance with this article.

ARTICLE X—CONVICT LABOR

The contractor shall not employ any person undergoing sentence of imprisonment at hard labor. This provision shall not be construed to prevent the contractor or any subcontractor hereunder from obtaining any of the supplies, or any component parts or ingredients thereof, to be furnished under this contract or any of the materials or supplies to be used in connection with the performance of this contract, directly or indirectly, from any Federal, State, or territorial prison or prison industry, *Provided*, That such articles, materials, or supplies are not produced pursuant to any contract or other arrangement under which prison labor is hired by or employed or used by any private person, firm, or corporation.

ARTICLE XI—LABOR

1. *Rate of Wages.*—*a.* The contractor or his subcontractor shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the contractor or subcontractor and such laborers and mechanics; and the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work. The contracting officer shall have the right to withhold from the contractor so much of accrued payments as may be considered necessary by the contracting officer to pay to laborers and mechanics employed by the contractor or any subcontractor on the work the difference between the rates of wages required by the contract to be paid laborers and mechanics on the work and the rates of wages received by such laborers and mechanics and not refunded to the contractor, subcontractors, or their agents.

b. In the event it is found by the contracting officer that any laborer or mechanic employed by the contractor or any subcontractor directly on the site of the work covered by the contract has been or is being paid a rate of wages less than the rate of wages required by the contract to be paid as aforesaid, the Government may, by written notice to the Contractor, terminate his right to proceed with the work or such part of the work as to which there has been a failure to pay said required wages and prosecute the work to completion by contract or otherwise, and the contractor and his sureties shall be liable to the Government for any excess costs occasioned the Government thereby.

c. The regulations of the Secretary of Labor, referred to in Article XIX hereof, allow certain "permissible deductions" from wages required by this article to be paid.

2. *Eight Hour Law.*—No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours in any one calendar day upon such work at the site thereof, except upon the condition that compensation is paid to such laborer or mechanic in accordance with the provisions of this article. The wages of every laborer and mechanic employed by the contractor or any subcontractor engaged in the performance of this contract shall be computed on a basic day rate of eight hours per day and work in excess of eight hours per day is permitted only upon the condition that every such laborer and mechanic shall be compensated for all hours worked in excess of eight hours per day at not less than one and one-half times the basic rate of pay. For each violation of the requirements of this article a penalty of Five Dollars (\$5.00) shall be imposed upon the contractor for each laborer or mechanic for every calendar day in which such employee is required or permitted to labor more than eight hours upon said work without receiving compensation computed in accordance with this article, and all penalties thus imposed shall be withheld for the use and benefit of the Government: *Provided*, That this stipulation shall be subject in all respects to the exceptions and provisions of U. S. Code, title 40, sections 321, 324, 325, and 326, relating to hours of labor, as modified by the provisions of Section 303 of Public Act No. 781, 76th Congress, approved September 9, 1940, relating to compensation for overtime, and further provided that the Canadian employees of Contractor may be exempted under this law.

3. All wage rates, including compensation for overtime under Section 2 of this Article, for laborers and mechanics engaged in work under this contract shall be approved in writing by the Contracting Officer and any amount paid by the Contractor to any laborer or mechanic in excess of the wage rate approved for such laborer or mechanic by the Contracting Officer shall be at the expense of the Contractor and shall not be reimbursed by the Government. When, in connection with the audit and check by the Contracting Officer or his authorized representative, of the Contractor's pay rolls prior to reimbursement as contemplated in Section 1 of Article II hereof, it is found that one or more laborers and/or mechanics have been paid wages at rates in excess of the wage rates approved as herein provided, the reimbursement made to the Contractor on account of such pay rolls will not include any such excess payments.

4. *Anti-Discrimination.*—a. The Contractor, in performing the work required by this contract, shall not discriminate against any worker because of race, creed, color, or national origin.

b. The Contractor agrees that the provision of paragraph a above will also be inserted in all of its subcontracts. For the purpose of this article, a subcontract is defined as any contract entered into by the contractor with any individual, partnership, association, corporation, estate, or trust, or other business enterprise or other legal entity, for a specific part of the work to be performed in connection with the supplies or services furnished under this contract: provided, however, that a contract for the furnishing of standard or commercial articles or raw material shall not be considered as a subcontract.

5. *Nonrebate of Wages.*—The Contractor shall comply with the regulations of the Secretary of Labor pursuant to the Act of June 13, 1934, 48 Stat. 948 (U. S. Code, title 40, secs. 276b and 276c), and any amendments or modifications thereof, shall cause appropriate provisions to be inserted in subcontracts to insure compliance therewith by all subcontractors subject thereto, and shall be responsible for the submission of affidavits required of subcontractors thereunder, except as the Secretary of Labor may specifically provide for reasonable limitations, variations, tolerances, and exemptions from the requirements thereof.

ARTICLE XII—ACCIDENT PREVENTION

In order to protect the life and health of his employees in the performance of this contract, the Contractor will comply with all pertinent provisions of the "Safety Requirements in Excavation—Building—Construction" approved by Chief of Engineers December 16, 1941 (a copy of which is on file in the Office of the Contracting Officer), and as may be amended, and will take or cause to be taken such additional measures as the Contracting Officer may determine to be reasonably necessary for this purpose. The Contractor will maintain an accurate record of and will report to the Contracting Officer in the manner and on the forms prescribed by the Contracting Officer, all cases of death, occupational disease, and traumatic injury arising out of or in the course of employment on work under this contract.

The Contracting Officer will notify the Contractor of any noncompliance with the foregoing provisions and the action to be taken. The Contractor shall after receipt of such notice, immediately correct the conditions to which attention has been directed. Such notice when served on the Contractor or his representative at the site of the work shall be deemed sufficient for the purpose aforesaid.

If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or any part of the work. When satisfactory corrective action is taken, a start order will be issued.

ARTICLE XIII—NOTICE TO GOVERNMENT OF LABOR DISPUTES

Whenever an actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor will immediately give notice thereof to the Contracting Officer.* Such notice shall include all relevant information with respect to such dispute.

ARTICLE XIV—OFFICIALS NOT TO BENEFIT

No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE XV—COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that he has not employed any person to solicit or secure his contract upon any agreement for a commission, percentage, brokerage, or contingent fee. Breach of this warranty shall give the Government the right to annul the contract, or, in its discretion, to deduct from the contract price or consideration the amount of such commission, percentage, brokerage, or contingent fees. This warranty shall not apply to commissions, payable by contractors upon contracts or sales secured or made through bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business.

ARTICLE XVI—CONTRACTOR'S ORGANIZATION AND METHODS

Upon the execution of this contract, the Contractor shall submit to the Contracting Officer a chart showing in general the executive and administrative organization, duties, and personnel to be employed in connection with the work under the contract; the data so furnished shall be supplemented as additional information becomes available.

ARTICLE XVII—LOADING AND UNLOADING CARS

The Contractor shall if requested by the Government, load promptly all railroad cars furnished for loading upon his order and shall unload from railroad cars promptly upon arrival all shipments consigned to him, and shall provide storage facilities and other facilities necessary for these purposes; and the Contractor shall not order railway cars for loading unless they can be loaded promptly and shall not cause or permit shipments to be consigned to him unless they can be unloaded from railroad cars promptly upon arrival.

*Such officer as may be designated by the Chief Supply Arm or Service concerned.

ARTICLE XVIII—EXPERT TECHNICAL ASSISTANCE

When in the judgment of the Contractor the complexity and nature of the project are such as to require expert technical assistants, or services, or advice in connection with special phases of the work such as site planning, manufacturing processes, labor negotiations, or other problems of a highly technical character, the Contractor may employ directly or by a service contract, with the consent and approval of the Contracting Officer, such supplemental professional services as are necessary for the proper design and execution of the project.

ARTICLE XIX—ASSIGNMENT OF RIGHTS HEREUNDER

Neither this contract, nor any interest therein, or claim thereunder, shall be assigned or transferred by the Contractor to any party or parties.

ARTICLE XX—RENEGOTIATION PURSUANT TO SECTION 403 OF THE SIXTH SUPPLEMENTAL NATIONAL DEFENSE APPROPRIATION ACT, 1942, AS AMENDED

a. Upon the written demand of the Secretary, at such period or periods when, in the judgment of the Secretary, the profits accruing to the Contractor under this contract can be determined with reasonable certainty, the fixed fee specified in Article I will be renegotiated to eliminate therefrom any amount found as a result of such renegotiation to represent excessive profits. The demand of the Secretary shall fix a place for renegotiation and a time for commencement thereof not later than one year after the close of the fiscal year of the Contractor within which completion or termination of the contract, as determined by the Secretary, occurs.

b. The Contractor will furnish to the Secretary such statements of actual costs of production and such other financial statements, at such times and in such form and detail, as the Secretary may prescribe, and will permit such audits and inspections of its books and records as the Secretary may request.

c. The Government shall retain from amounts otherwise due the Contractor, or the Contractor shall repay to the Government if paid to him, any amount of the fixed fee specified in Article I found as a result of such renegotiation to represent excessive profits and not eliminated through reductions in fixed fee or otherwise, as the Secretary may direct.

d. The Contractor will include in each subcontract made by it under this contract for an amount in excess of \$100,000, the following provisions:

"ARTICLE —.—Renegotiation Pursuant to Section 403 of the Sixth Supplemental National Defense Appropriation Act, 1942, as amended.

"1. Upon the written demand of the Secretary, at such period or periods when, in the judgment of the Secretary, the profits accruing to the subcontractor under this contract can be determined with reasonable certainty, the Secretary and the subcontractor will renegotiate the contract price to eliminate therefrom any amount found as a result of such renegotiation to represent excessive profits. The demand of the Secretary shall fix a place for renegotiation and a time for the commencement thereof not later than one year after the close of the fiscal year of the subcontractor within which completion or termination of the contract, as determined by the Secretary, occurs.

"2. The subcontractor will furnish to the Secretary such statements of actual costs of production and such other financial statements, at such times and in such form and detail, as the Secretary may prescribe, and will permit such audits and inspections of its books and records as the Secretary may request.

"3. Any amount of the contract price found as a result of such renegotiation to represent excessive profits shall, as directed by the Secretary—

(A) Be deducted by the Contractor from payments otherwise due to the subcontractor under this contract; or

(B) Be paid by the subcontractor directly to the Government, if paid to him; or

(C) Be eliminated through reductions in the contract price or otherwise.

"4. The subcontractor agrees that the Contractor shall not be liable to the subcontractor for or on account of any amount paid to the Government by the subcontractor or deducted by the Contractor from payments otherwise due under this contract, pursuant to directions from the Secretary in accordance with the provisions of this Article. Under its contract with the Gov-

ernment, the Contractor is obligated to pay or credit to the Government all amounts withheld by it from the subcontractor hereunder.

"5. The subcontractor agrees (a) upon direction of the Secretary, to include in any subcontract hereunder sections (1) to (6) inclusive of this Article, and (b) to make no subdivisions of any contract or subcontract for the purpose of evading the provisions of this section, and (c) to repay to the Government the amount of any reduction in the contract price of any such subcontract which results from renegotiation thereof by the Secretary, and which the Secretary directs the subcontractor to withhold from payments otherwise due under such subcontract and actually unpaid at the time the subcontractor receives such direction.

"6. As used in this Article—

"a. The term 'Secretary' means the Secretary of War or any duly authorized representative of the Secretary including the Contracting Officer.

"b. The term 'subcontract' means any purchase order or agreement to perform all or any part of the work, or to make or furnish any material, part, assembly, machinery, equipment, or other personal property required for the performance of this contract, unless exempt under or exempted pursuant to Section 403 (i) of the Sixth Supplemental National Defense Appropriation Act of 1942 as amended by Section 801 of the Revenue Act of 1942.

"c. The terms 'renegotiate' and 'renegotiation' have the same meaning as in section 403 (b) of the Sixth Supplemental National Defense Appropriation Act, 1942, as amended.

"d. The term 'this contract' means this contract as modified from time to time."

(e) 1. The Contractor agrees to make no subdivisions of any contract or subcontract for the purpose of evading the provisions of this Article.

2. If any renegotiation between the Secretary and any subcontractor pursuant to the provisions required by section (d) hereof results in a reduction of the contract price of the subcontract, the Government shall retain from payments otherwise due to the Contractor, or the Contractor shall repay to the Government, as the Secretary may direct, the amount of such reduction which the Secretary directs the Contractor to withhold from payments otherwise due to the subcontractor under the subcontract and actually unpaid at the time the Contractor receives such direction.

(f) As used in this Article—

1. The term "Secretary" means the Secretary of War or any duly authorized representative of the Secretary, including the Contracting Officer.

2. The term "subcontract" means any purchase order or agreement to perform all or any part of the work, or to make or furnish any material, part, assembly, machinery, equipment, or other personal property, required for the performance of this contract, unless exempt under or exempted pursuant to Section 403 (i) of the Sixth Supplemental National Defense Appropriation Act of 1942 as amended by Section 801 of the Revenue Act of 1942.

3. The term "renegotiate" and "renegotiation" have the same meaning as in section 403 (b) of the Sixth Supplemental National Defense Appropriation Act, 1942, as amended.

4. The term "this contract" means this contract as modified from time to time.

ARTICLE XXI—DEFINITIONS

1. The term "Secretary of War" as used herein shall include the Under Secretary of War; and the term "Chief of Supply Arm or Service" shall mean the Chief of Engineers.

2. The term "his duly authorized representative" shall mean any person or board authorized by the Secretary of War or the Chief of the Supply Service, as the case may be, to act for him, other than the Contracting Officer.

3. Except for the original signing of this contract, and except as otherwise stated herein, the term "Contracting Officer" as used herein shall include his duly appointed successor or his authorized representative.

4. The term "construction plant" shall include any part thereof.

ARTICLE XXII—APPROVAL REQUIRED

This contract shall be subject to the approval of the Secretary of War and shall not be binding unless so approved.

ARTICLE XXIII—ALTERATIONS

The following changes were made in this contract before it was signed by the parties hereto: None.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written:

THE UNITED STATES OF AMERICA,
By THEODORE WYMAN, Jr.,
Colonel, Corps of Engineers,
Contracting Officer.

CONTRACTOR:
NOBLE DRILLING CORPORATION,
By LLOYD NOBLE.

Witnesses as to signature of Contractor:

ROSE LOSCHER,
Jesuit College, Edmonton, Alberta.

NAOMI KALER,
12524 112th Ave., Edmonton, Alberta:

I, C. C. Forbes, certify that I am the Secretary of the corporation named as Contractor herein; that Lloyd Noble, who signed this contract on behalf of the Contractor, was then President of said corporation; that said contract was duly signed for and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of said corporation this 24th day of December 1942.

[CORPORATE SEAL]

C. C. FORBES, *Secretary.*

I, Theodore Wyman, Jr., hereby certify that, to the best of my knowledge and belief, based upon observation and inquiry, Lloyd Noble, who signed this contract for Noble Drilling Corporation, had authority to execute the same, and is the individual who signs similar contracts on behalf of this corporation with the public generally.

THEODORE WYMAN, Jr.,
Colonel, Corps of Engineers,
Contracting Officer.

APPENDIX A

DRAWINGS, SPECIFICATIONS, OR INSTRUCTIONS

To be furnished hereafter by the Contracting Officer and subject in every detail to his supervision, direction, and instructions.

APPENDIX B TO CONTRACT No. W-2385-ENG-34

(All equipment available ----- except where otherwise specified)

Quantity	Item: Complete Description, Capacity, and Identifying Nos.	Total Purchase Cost or Fair Value	Rental Rate \$ Month, Week or Day
	None		

APPENDIX C

There is set forth below the present key employees proposed to be furnished under this contract indicating their names, description of work to be performed, an expression as to whether the salaries are based on a weekly, monthly, or annual basis, and the maximum salary agreed upon to be paid for services in the position indicated for personnel now employed.

INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM 9825

NOBLE DRILLING CORPORATION

Information furnished for *Appendix C*, Contract No. W-2385-Eng-34 (All salaries shown are on a monthly basis) December 16, 1942

GROUP A

Position	Maximum Salary agreed to be paid under contract
Accountants—Junior	\$200. 00
Bookkeepers—General	190. 00
Clerks:	
File	165. 00
General	175. 00
Pay roll	200. 00
Personnel	200. 00
Property	175. 00
File Supervisor	195. 00
Messengers	120. 00
Operators:	
Calculating machine	180. 00
Switchboard	175. 00
Receptionists	165. 00
Stenographers	180. 00
Typists	150. 00

GROUP B

Accountants—Senior	\$300. 00
Bookkeeper-Stenographer (male)	275. 00
Clerks:	
Chief	350. 00
Asst. Chief	300. 00
Purchasing	250. 00
Expeditors—Purchasing	350. 00
Paymasters	350. 00
Secretaries	250. 00
Timekeepers—Chief	275. 00
Timekeepers	250. 00
Warehouse Clerks	300. 00

GROUP C

Adm. Asst. and Chief Acct.	\$700. 00
Chief of Field Operations	750. 00
Drilling Superintendents	625. 00
Personnel Directors	500. 00
Project Managers	750. 00
Project Managers—Assistant	725. 00
Purchasing Agents	500. 00
Purchasing Agents—Assistant	400. 00
Stewards—Chief	500. 00
Warehouseman	475. 00

GROUP D—none

NOBLE DRILLING CORPORATION—Continued

GROUP E

Cooks.....	\$275. 00
Cooks' helpers.....	185. 00
Janitors.....	200. 00
Stewards—Asst. Chief.....	350. 00
Wood Choppers.....	150. 00

Above rates and classifications of maximum salary cover only American citizens. The above rates and classifications do not include any subsistence or other services or goods which may be furnished for some of the classifications.

CERTIFICATION

I, P. M. JOHNS, the duly qualified and ass't. secretary of Noble Drilling Corporation, a Delaware Corporation, do hereby certify that pursuant to a call and waiver of notice of special meeting of the Board of Directors of Noble Drilling Corporation, a meeting was held at 209 Philcade Building, Tulsa, Oklahoma, at 10 o'clock A. M., on the 30th day of December, 1942, and that the following constitutes the minutes which were taken at said meeting, and that the resolution adopted thereat is in full force and effect, and has not been rescinded:

Pursuant to the foregoing call and waiver of notice a special meeting of the Board of Directors of Noble Drilling Corporation was held in its offices at 209 Philcade Building in the City of Tulsa, at 10 o'clock A. M., on the 30th day of December, 1942, and the following directors were present: Lloyd Noble, C. C. Forbes, Edgar Holt.

M. Lloyd Noble was selected as Chairman and Mr. C. C. Forbes, Secretary of the meeting.

The Chairman called the meeting to order and declared that all the directors were present and the meeting open for business.

It was stated that

WHEREAS on the 10th day of September, 1942, Noble Drilling Corporation adopted a resolution authorizing Mr. Lloyd Noble to negotiate with the United States of America for and in behalf of Noble Drilling Corporation to secure a contract for the drilling of certain oil and gas wells in the Dominion of Canada and Alaska, and

WHEREAS on September 25, 1942, Lloyd Noble for and in behalf of Noble Drilling Corporation entered into a letter contract between the United States of America and Noble Drilling Corporation, being Letter Contract No. W-2385-eng-34, and

WHEREAS Lloyd Noble for and in behalf of Noble Drilling Corporation signed an extension of the above mentioned Letter Contract, said Extension being dated November 26, 1942, and the same being signed and accepted by Lloyd Noble for and in behalf of Noble Drilling Corporation on December 5, 1942; and

WHEREAS on December 24, 1942, Lloyd Noble for and in behalf of Noble Drilling Corporation, executed the prime contract dated September 25, 1942, by and between the United State of America and Noble Drilling Corporation, and

WHEREAS the Board of Directors of Noble Drilling Corporation desire to ratify, approve and confirm each, all and every act of Lloyd Noble done in executing the above mentioned contracts for and in behalf of Noble Drilling Corporation,

THEREFORE, BE IT RESOLVED by the Board of Directors of Noble Drilling Corporation that the contracts above mentioned are hereby adopted, ratified, approved and confirmed, and all of the acts done by Mr. Lloyd Noble for and in behalf of the Noble Drilling Corporation in executing the contracts above mentioned are hereby adopted, ratified, approved, and confirmed as the acts and deeds of Noble Drilling Corporation.

There being no further business, upon motion duly made, seconded, and carried, the meeting adjourned.

LYLOYD NOBLE, *Chairman.*
C. C. FORBES, *Secretary.*
EDGAR HOLT, *Director.*

Dated this the 9th day of January 1943.

NOBLE DRILLING CORPORATION,
P. M. JOHNS, *Ass't Secretary.*

EXHIBIT No. 1089

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington 25, D. C., December 14, 1943.

Mr. RUDOLPH HALLEY,
Executive Assistant to Chief Counsel, Truman Committee,
317 Senate Office Building, Washington, D. C.

DEAR Mr. HALLEY: Under date of November 29 you requested information concerning communications or memoranda passing between the War Department and the Canadian Government regarding Canol.

I am advised that there is no record of any correspondence in regard to the Canol Project between the Canadian Government and any division of the War Department, either before or after April 30, 1942. From the inception of the project all communications with the Canadian Government have been handled either by the Department of State or the Permanent Joint Board on Defense, Canada-United States.

In the early stages of the construction of the Alaskan Highway there were several instances of correspondence between the Office of the Chief of Engineers and Canadian agencies but these instances contain no reference to, and had no bearing on, the Canol Project.

Sincerely yours,

HERBERT A. FRIEDLICH,
Lieutenant Colonel, J. A. G. D.,
Assistant.

[EXHIBIT Y-1]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS

In a communication entitled "Compilation of Arrangements Between the United States Government and the Dominion of Canada" by Willis F. Daniels, Lieutenant Colonel, J. A. G. D., Judge Advocate Northwest Service Command (also approved by Edward T. Wailes, Esquire, Division of European Affairs, Department of State) it is stated that—

"The basic agreements between the two Governments cover the projects known as the Alcan Highway, the Canol Project, and all other projects in progress in the Northwest Service Command. These agreements are hereto attached and marked 'Attachments no. 1 to 1f and 2 to 2c.' They provide in a general way the following:

A. That the Canadian Government will acquire necessary rights of way; title to remain in the Canadian Government.

B. To waive duties, transit, or similar charges where applicable.

C. To waive import duties, sales taxes, license fees, and other similar charges on all equipment and supplies to be used in the projects.

D. To remit income taxes of persons and corporations whose residence is in the United States.

E. To facilitate admission into Canada of United States citizens. The repatriation of these persons is the responsibility of the United States Government.

F. Permission to obtain natural resources for the carrying on of construction of the various projects.

The original Alcan agreement provided that the southern terminus would be St. John, British Columbia. A subsequent agreement provides that the southern terminus of the road shall be Dawson Creek, British Columbia. The agreement concerning the Alcan Highway has been expanded to cover the building of flight strips under the same terms and conditions. The agreement by an understanding between the two Governments has been further expanded to include as part of the Alcan project the telephone and telegraph line being constructed along the highway and the laying of certain pipe lines as well. (See attachments no. 1c, 1d, and 1f.) The basic agreement covering the Canol project has been expanded to take in the drilling of other

oil wells, the laying of other pipe lines, the building of flight strips, and winter roads. (See attachments no. 2b and 2c.)

The basic agreements now cover in the same manner all the projects in progress in Canada that are being carried on by the United States Government within the Northwest Service Command.

The basic agreements provide in the concluding paragraphs that the practical details necessarily involved in the execution of these agreements be arranged directly between appropriate governmental agencies. This has been done and within the last few days final arrangements covering all projects now in progress and the future ones have been consummated. These arrangements cover the following subjects:

LABOR

A. JURISDICTION

1. United States citizens employed in the United States by United States contractors to work on these projects are entirely without the jurisdiction of the Canadian Government or any of its provinces. (See despatch no. 3364 transmitted by the Honorable Pierrepont Moffat, November 27, 1942, paragraph 3, page 2, attachment no. 3.)

2. In the event Canadians are employed by United States contractors the wage scale shall be governed by the Federal War Labor Board, not the provincial War Labor Board. This was recently worked out, and a memorandum to that effect, dated November 30, was transmitted from the United States Legation to the State Department. (See attachment no. 4.)

B. EMPLOYMENT

United States contractors engaged in the various projects in the Northwest Service Command shall normally employ only employees whose contract of employment is consummated outside of Canada and the employee not having been a resident of Canada within the last three months prior to the employment. It is recognized, however, that there must be some exceptions to this proviso. (See paragraphs 1 and 2 of attachment no. 3.)

C. WORKMAN'S COMPENSATION

United States citizens employed by United States contractors in the manner above set forth render the United States contractors immune from the Canadian and provincial workman's compensation laws and regulations, but instead they are governed by the provisions of the Longshoreman's and Harbor Worker's Compensation Act of the United States. Where projects are being carried on within the Yukon Territory or the Northwest Territories the Canadian contractors and United States contractors, whether employees are citizens of the United States or of Canada, are governed by this same act, the Canadian workman's compensation law having no application. (See attachment no. 3.)

D. UNEMPLOYMENT INSURANCE

1. The Canadian Unemployment Insurance Act will not apply to any American employees no matter by whom they are employed. (See attachment no. 3.)

2. The above act will apply to Canadian employees whether they are employed by American or Canadian contractors. (See attachment no. 3.)

3. The above act will not apply to cases where the United States Government employs civil employees in connection with these projects. (See paragraphs B-1, 2, and 3 of attachment no. 3.)

E. CONDITIONS OF WORK

American contractors engaged in these projects shall not be controlled or governed by the Canadian laws or regulations, whether Federal or provincial, as to their American employees so far as wage rates, hours of labor, or working conditions are concerned. (See paragraph no. 3, attachment no. 3.)

F. TAXES

1. The basic agreements as they now stand are the same for all projects. All taxes set out on page 1 of this compilation are waived or remitted. There are tax situations, however, that have been subsequently worked out between departments and bureaus of the two Governments. The term *remit* with reference to income taxes as opposed to the word *waiver* in reference to other taxes has been used. The reason for this, as appears after conferences with the State Department and the reading of some correspondence, is that the Canadian officials who signed the various agreements and arrangements have authority to waive other taxes but no authority by statute to waive income tax but may remit it. The understanding is that it will not be necessary to pay the income tax and then make application to have the same refunded or remitted. There is no requirement or necessity that any United States citizen, whether corporation, partnership, or individual, pay any income tax to Canada or excess-profits tax whatsoever; provided, of course, that such income or excess profits spring from the projects here under consideration. It shall not be necessary to file income-tax returns.

2. Equipment, supplies, etc., belonging to the United States Government, brought into Canada and employed in any of these projects will be admitted to free entry under Order in Council PC 57/8600 and under instructions issued to certain Canadian officials. (See attachment no. 5.) (This is a confidential paper and has not been given circulation.)

3. Imported goods used in articles manufactured or produced in Canada and subsequently used in any of these projects if bought with United States funds and if the property of the United States and so remains the property of the United States are to be imported free; and, if a duty has been paid, a draw-back will be allowed. This is covered by a revision of WM No. 62. The language is somewhat changed but the State Department gives assurance that it covers all supplies, material, and finished products bought in the United States by Canadians and sold for the purposes herein discussed. (See attachments no. 6 and 6a.)

4. The Canadian Government in Council enacted a measure known as PC 53/8097, September 9, 1942, wherein certain broad tax matters were covered resulting in exemptions, refunds, and remissions of customs duties, excise taxes, and sales taxes on things purchased and services rendered. There was some slight exception made as to stamp taxes. The stamp taxes not exempted were those on matches, cigarette papers, cigarette paper tubes, playing cards, letters, and post cards. The language of this enactment, however, provided that the exemption applied to goods bought by United States funds and becoming the property and remaining the property of the United States Government. September 29, 1942, Mr. North of the American Legation forwarded a copy of this enactment together with his observations. He points out that the stamp tax on the articles just listed was not exempted because the United States make no such exemptions on these items when sold to the United States Government and sold by the United States Government through canteens. (See attachmen no. 7.)

The language employed by the Council in this enactment gave rise to further conferences. The United States Army purchased and planned to purchase many items which in turn were to be sold through canteens and other governmental instrumentalities to the armed forces. This meant that these items were not to remain the property of the United States. A memorandum of the Customs and Excise Division, WM No. 68 issued as a result of PC 53/8097, did not solve this problem. However, the two Governments through authorized persons had several conferences, the results of which were reported by Mr. North of the American Legation in Ottawa in a paper sent to our Department of State under date of October 14, 1942, wherein he advises that goods imported by the United States Government and resold in canteens or other governmental instrumentalities to those persons authorized to purchase would be exempt in a manner set forth in PC 53/8097. In other words the language "remain the property of the aforementioned government" was not to be considered to exclude articles purchased by the Government, imported and sold through canteens. (See paragraphs 2, 3, 6, and 7 of attachment no. 8. See also attachment 8a.)

A further memorandum was issued by the Division of Customs and Excise known as WM No. 75 based on PC 53/8097. This memorandum dealt principally with material, goods, repairs, and canteen supplies purchased by contractors engaged in the Alcan Highway project. These items were items that do not come strictly within the terms "bought with Government funds and becoming the property and remaining the property of the Government." The exemptions there set out are rather numerous and nothing would be gained by repeating them here. (See attachment no. 9.) Mr. North, following the issuance of this memorandum, forwarded to our State Department his observations pointing out that the memorandum covers only the Alcan Highway but that by practice it was applied to all other projects. (See attachment no. 9a.) However, this is only by understanding and practice and as yet no memorandum has been issued. It is, however, under consideration. This particular memorandum (WM No. 75) must be considered a broadening one and not a restricting one, hence any exemptions previously given through basic agreements, PC 53/8079, memorandum WM No. 68, and through A 160 cannot be considered to be superseded or in any way restricted. Therefore, purchases made by the United States Government and imported, or purchases made by Government funds imported and employed in these various projects, and purchases made by the United States Government imported and sold through canteens or other governmental instrumentalities to the armed forces, or gifts or purchases received or made by members of the armed forces and imported are all tax free except as to stamp taxes on items heretofore listed.

5. Members of the United States Armed Forces in Canada and other official United States personnel temporarily in Canada or war work may receive parcels from the United States, whether they are gifts or purchases, duty free. (See paragraph 6, attachment no. 5.)

Attachment no. 5 is known as A 160 and remains in effect today. This is brought out by correspondence between the United States Minister to Canada and E. T. Wailes Esquire of our State Department as well as other correspondence and memoranda issued by the various governmental departments of Canada.

6. Alcoholic beverages are not included in these exemptions. It appears, however, that American beer is included as it is not considered by us as intoxicating.

7. Automobile license fees have been exempted by each territory and province except that of Alberta for all governmental employees and contractors' personnel engaged in these projects. Information with respect to the exemption from the Province of Alberta is expected soon.

The above compilation has been worked out as a result of the very fine and helpful cooperation of the Division of European Affairs of our State Department.

EXHIBIT No. 1090

[EXHIBIT Y-2A]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS

NOTES EXCHANGED AT OTTAWA COVERING THE CANOL PROJECT

OTTAWA, CANADA, *June 27, 1942.*

No. 710

The Right Honorable the SECRETARY OF STATE FOR EXTERNAL AFFAIRS, *Ottawa.*

SIR: 1. I have the honor to refer to recent conversations which have taken place with officials of the Department of External Affairs regarding the desire of the United States Government to take steps for extending the fuel supply for the United States Army in Canada and Alaska.

2. My Government, faced with the necessity of obtaining increased fuel supply without delay, desires to propose the following project, to wit: that is:

(a) Make surveys and construct a pipe line either by United States Army Engineers or by contract, of a size sufficient to deliver three thousand barrels of

oil daily from Norman Wells, Northwest Territories, Canada, to Whitehorse, Yukon Territory, Canada:

(b) Sign a contract with a Canadian company to drill additional wells, upon its leases obtained under the Petroleum and Natural Gas Regulations applicable to Dominion Lands or upon permits obtained by it under the Oil and Gas Regulations covering land in the vicinity of Norman Wells. Under this contract the United States War Department would provide the necessary equipment and would purchase the total flow of the additional wells during the war at an agreed price. The wells would remain part of the leasehold or permit property of the Canadian company and would be regarded as having been drilled under the provisions of the Dominion Regulations noted in this clause;

(c) Arrange for the establishment at Whitehorse of facilities for refining crude oil with a capacity of three thousand barrels per day under a contract awarded with a view to insuring the execution of the work in the shortest possible time without regard to whether the contractors are Canadian or American;

(d) Contract with a company or companies to store for the future use of the United States Army, all of the gasoline which may be produced by the refinery at Norman Wells during the operating season of 1942 in excess of what is required for the maintenance of services and enterprises in the Mackenzie District, to operate the pipe line to Whitehorse and to operate the refinery there unless it is operated by the United States Government.

3. My Government further proposes that the pipeline and the refinery shall remain its property, and still be operated under contracts with it or by its agents or representatives during the war. It further proposes that at the termination of hostilities the pipe line and refinery shall be valued by two valuers, of whom one shall be named by the United States and one by Canada, with power, if they disagree, to appoint an umpire. The valuation shall be based upon the then commercial value of the pipe line and the refinery, and the Canadian Government shall be given the first option to purchase at the amount of the valuation. If the option is not exercised within three months, they may be offered for sale by public tender, with the amount of the valuation as the reserve price. In the event that neither the Canadian Government nor any private company desires to purchase the pipe line and refinery at the agreed price, the disposition of both facilities shall be referred to the Permanent Joint Board on Defense for consideration and recommendation. Additionally, it is proposed that both Governments agree that they will not themselves order or allow the dismantling of either the pipe line or the refinery, nor will they allow any company which purchases them so to do, unless and until approval for dismantlement is recommended by the Permanent Joint Board on Defense. It is understood that if the pipe line and refinery are at any time used for commercial purposes they will be subject to such regulations and conditions as the Canadian Government may consider it necessary to impose in order to safeguard the public interest.

4. For its part, my Government asks the Canadian Government to agree:

(a) to acquire any essential land and necessary rights-of-way that may be involved in the projects (including the settlement of all local claims in this connection), title to remain in the Crown in the right of Canada;

(b) to waive during the war import duties, sales taxes, territorial taxes, license fees or other similar charges on all equipment and supplies to be used in the execution or maintenance of the project by the United States and all personal effects of the construction personnel;

(c) to remit during the war royalties on oil production, and income tax on the income of persons (including corporations) resident in the United States who are employed on the construction or maintenance of the project;

(d) to take the necessary steps to facilitate the admission into Canada of such United States citizens as may be employed on the construction or maintenance of the project during the war, it being understood that the United States will undertake to repatriate at its expense any such persons if the contractors fail to do so.

5. If the Government of Canada agrees to the foregoing proposal for this project, it is suggested that any supplementary details involved in its execution be arranged directly between the appropriate governmental agencies subject, when desirable, to confirmation by subsequent exchange of notes.

True copy of the original signed by

PIERREPONT MOFFAT.

[EXHIBIT Y-2b]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS (Continued)

No. 98

OTTAWA, June 29, 1942.

The UNITED STATES MINISTER TO CANADA,
Ottawa.

SIR: I have the honour to acknowledge the receipt of your Note of June 27, 1942, No. 710, which made certain proposals in regard to the steps to be taken for the purpose of extending the fuel supply for the United States Army in Canada and Alaska.

The proposals made in your Note under reference have been examined by the appropriate authorities of the Canadian Government and it gives me pleasure to inform you that these proposals are accepted. So far as Canada is concerned the agreement which is effected by this exchange of notes will be considered to have come into effect on this date.

Accept, Sir, the renewed assurances of my highest consideration.

M. A. ROBERTSON,
For Secretary of State for External Affairs.

[EXHIBIT Y-3a]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS (Continued)

NOTES EXCHANGED AT OTTAWA COVERING THE SUPPLEMENTARY CANOL PROJECT

No. 738

OTTAWA, CANADA, August 14, 1942.

The Right Honorable the SECRETARY OF STATE FOR EXTERNAL AFFAIRS,
Ottawa.

SIR: I have the honor to refer to my conversation with Mr. Keenleyside on June 26 last, in which on behalf of the Government of the United States I requested the approval of the Canadian Government for the establishment of an oil supply line which would be supplementary to that known as the Canol project which was dealt with in my note of June 27 and your reply of June 29, 1942.

As I pointed out, this supplementary project would involve the transportation in tank cars of gasoline destined for the use of the United States Army in Alaska to Prince Rupert, where authority was requested for the American Government to build by contract suitable storage and loading facilities, and thence by barge to Skagway, Alaska. From Skagway to Whitehorse a four-inch pipe line would be laid under contracts let by the American Government, and the authority of the Canadian Government was requested to lay that section of the pipe line within Canadian territory. At Whitehorse the gasoline would be stored in the facilities being built under the Canol project.

The Canadian Government was good enough to inform me orally on June 27 that it approved the establishment of the new supply line as outlined in the preceding paragraph.

My Government has instructed me to propose to the Canadian Government that the terms of the agreement reached in the exchange of notes of June 27-June 29, 1942, on the Canol project shall apply also, mutatis mutandis, to the supplementary project outlined above in respect of any construction within Canadian territory except as hereafter set forth. My Government proposes that the pipe line from Skagway to Whitehorse and the storage and loading facilities at Prince Rupert shall remain its property and shall be operated under contracts with it or by its agents or representatives during the war. It further proposes that at the termination of the hostilities the two governments agree that at the request of either government discussions between them shall be undertaken with a view to reaching an agreement in regard to the disposition of this pipe line and of the storage and loading facilities at Prince Rupert. Additionally, it is proposed that both governments agree that they will not themselves order or allow the dismantlement of this pipe line or of the facilities mentioned, nor will they allow their dismantlement by any company which may purchase them unless and until approval for dismantlement is recommended by the Permanent Joint Board on Defense.

Accept, Sir, the renewed assurances of my highest consideration.

(Signed) PIERREPONT MOFFAT.

[EXHIBIT Y-3b]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS (Continued)

No. 125

OTTAWA, August 15, 1942.

THE UNITED STATES MINISTER TO CANADA,

Ottawa.

SIR: I have the honour to acknowledge receipt of your note of August 14, 1942, No. 738, in which you present certain proposals for the establishment of an oil supply line for the use of the United States Army in Alaska. It is understood that the proposed supply line will be supplementary to the scheme known as the Canol project, which was the subject of an exchange of notes dated June 27, 1942, and June 29, 1942.

After careful consideration the Canadian Government agrees to the proposals outlined in your note under reference subject to the conditions therein set forth.

Accept, Sir, the renewed assurances of my highest consideration.

(Signed) N. A. ROBERTSON,

For Secretary of State for External Affairs.

[EXHIBIT Y-4a]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS (Continued)

NOTES EXCHANGED AT OTTAWA RELATIVE TO PROSPECTING

OTTAWA, CANADA, December 28, 1942.

No. 818

SIR: I have the honor to refer to our exchange of notes of June 27 and June 29, 1942, regarding the desire of the United States Government to take steps for extending the fuel supply for the U. S. Army in Canada and Alaska. At that time the United States Government proposed, and the Canadian Government approved, the so-called Canol Project, which included, inter alia, the drilling of wells in the vicinity of Norman Wells, and the laying of a pipe line from Norman Wells to Whitehorse, capable of delivering 3,000 barrels of oil daily.

The developments of our joint war effort have in the opinion of My Government made it vitally necessary to discover additional sources of petroleum in north-western Canada and Alaska, capable of producing from 15,000 to 20,000 barrels per day, to supplement the supply which will be obtained from Norman Wells. This will require the drilling of exploratory, or, in oil parlance, "wildcat" wells in this northern region. As such operations should be conducted in a number of widely separated locations in the Northwest Territories, where oil is believed to exist, it is suggested that the area in Canada within which such operations are authorized be bounded on the north by the Arctic Ocean, on the east by the 112th meridian, on the south by the 60th parallel, on the west by the Continental Divide and the Alaska-Canadian Border.

The operations under immediate contemplation—as a result of which, however, it may prove desirable to enlarge or expand the Canol Project—are for the sole purpose of discovering oil fields capable of producing the required 20,000 barrels per day. No plans have as yet been worked on covering the refineries, storage, or distribution systems beyond those already authorized and approved by the Canadian Government.

In view of all the circumstances involved, and the increasingly urgent need of additional fuel for military purposes in the far north, the Government of the United States of America hopes that the Canadian Government will approve these exploratory operations with the understanding that the United States Army authorities be allowed during the war to drill through contract with one or more companies, either Canadian or American, to develop through contract with one or more Canadian companies, and to make use of any petroleum sources that may be discovered, subject to Canadian regulations governing such operations and to the further understanding that operations would be subject to the provisions of our exchange of notes of June 27 and June 29, above referred to, insofar as such provisions are not inconsistent with the provisions of this note and are capable,

9834 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

with necessary adaptations and modifications, of being applied to such operations. My Government will, of course, keep the Canadian Government fully informed of any future plans for carrying out these operations.

Accept, Sir, the renewed assurances of my highest consideration.

For the Minister:

(sgd.) LEWIS CLARK,
Second Secretary of Legation.

The Right Honorable The SECRETARY OF STATE FOR EXTERNAL AFFAIRS,
Ottawa.

[EXHIBIT Y-4b]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS (Continued)

NOTES EXCHANGED AT OTTAWA RELATIVE TO PROSPECTING

OTTAWA, January 13, 1943.

No. 2.

SIR: I have the honour to inform you that the Canadian Government accepts the proposals set forth in your note of December 28, 1942, No. 818, concerning the drilling of exploratory oil wells in the Northwest Territories.

Accept, Sir, the renewed assurances of my highest consideration.

(sgd.) N. A. ROBERTSON,
for Secretary of State for External Affairs.
THE UNITED STATES MINISTER TO CANADA,
The Legation of the United States of America, Ottawa, Canada.

[EXHIBIT Y-5a]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS (Continued)

NOTES EXCHANGED AT OTTAWA RELATIVE TO POST-WAR DISPOSITION OF VARIOUS DEFENSE PROJECTS IN CANADA

DEPARTMENT OF EXTERNAL AFFAIRS,
Ottawa, January 27, 1943.

No. 7.

SIR: I have the honour to acknowledge receipt of your note of January 27, 1943, No. 827, in which you referred to recent discussions relating to the post-war disposition of various defense projects, installations, and facilities being or to be constructed in Canada by the Government of the United States with the consent and approval of the Government of Canada.

It is noted with satisfaction that the Government of the United States has approved the Twenty-Eighth Recommendation of the Permanent Joint Board on Defense which dealt with this matter and which read as follows:

"The Board considered the question of the post-war disposition of the defense projects and installations which the Government of the United States has built or may build in Canada. The Board noted that the two Governments have already reached specific agreements for the post-war disposition of most of the projects and installations thus far undertaken. It considers that such agreements are desirable and should be made whenever possible.

"The Board recommends the approval of the following formula as a generally fair and equitable basis to be used by reference whenever appropriate in the making of agreements in the future and to cover such defense projects, if any, the post-war disposition of which has not previously been specifically provided for:

"A: All immovable defense installations built or provided in Canada by the Government of the United States shall within one year after the cessation of hostilities, unless otherwise agreed by the two Governments, be relinquished to

the Crown either in the right of Canada or in the right of the province in which the same or any part thereof lies, as may be appropriate under Canadian law.

"B: All movable facilities built or provided in Canada by the Government of the United States shall within one year after the cessation of hostilities, unless otherwise agreed by the two Governments, at the option of the United States Government:

(1) be removed from Canada;

or

(2) be offered for sale to the Government of Canada, or with the approval of the Government of Canada, to the Government of the appropriate Province at a price to be fixed by a Board of two appraisers, one to be chosen by each country and with power to select a third in the case of disagreement.

"C: In the event that the United States Government has foregone its option as described in B (1), and the Canadian Government or the Provincial Government decides to forego its option as described in B (2), the facility under consideration shall be offered for sale in the open market, any sale to be subject to the approval of both Governments.

"D: In the event of no sale being concluded the disposition of such facility shall be referred for recommendation to the Permanent Joint Board on Defense or to such other agency as the two Governments may designate.

The principles outlined above shall reciprocally apply to any defense projects and installations which may be built in the United States by the Government of Canada.

"All of the foregoing provisions relate to the physical disposition and ownership of projects, installations, and facilities and are without prejudice to any agreement or agreements which may be reached between the Governments of the United States and Canada in regard to the post-war use of any of these projects, installations, and facilities."

It gives me pleasure to inform you that the Canadian Government has also approved this Recommendation and has so informed the Permanent Joint Board on Defence.

Accept, Sir, the renewed assurances of my highest consideration.

(Signed) W. L. MACKENZIE KING,
Secretary of State for External Affairs.

THE CHARGE D' AFFAIRES AD INTERIM,
The United States Legation, Ottawa, Canada.

[EXHIBIT Y-5B]

THE CANOL PROJECT—INTERNATIONAL AGREEMENTS (Continued)

NOTES EXCHANGED AT OTTAWA RELATIVE TO POST-WAR DISPOSITION OF VARIOUS DEFENSE PROJECTS IN CANADA

No. 827.

Ottawa, January 27, 1943.

SIR: Under instructions from my Government, I have the honor to refer to conversations relating to the post-war disposition of various facilities being or to be constructed in Canada by the Government of the United States.

Although in many instances the Governments of the United States of America and of Canada have reached specific agreements covering the post-war disposition of defense projects and installations which, in order more effectively to prosecute the war, the Government of the United States, with the consent and approval of the Canadian Government, has built or is building in Canada, nevertheless there seemed advantage in defining certain general principles which in the absence of special circumstances should serve as a guide to the two Governments in formulating any future agreements covering the post-war disposition of such projects or installations in Canada. The same general principles would of course apply reciprocally in the event of any project

or installation being built by the Canadian Government in the United States territory.

The matter was referred to the Permanent Joint Board on Defense which after careful study adopted the following recommendation on January 13, 1943.

"The Board considered the question of the post-war disposition of the defense projects and installations which the Government of the United States has built or may build in Canada. The Board noted that the two Governments have already reached specific agreements for the post-war disposition of most of the projects and installations thus far undertaken. It considers that such agreements are desirable and should be made whenever possible.

"The Board recommends the approval of the following formula as a generally fair and equitable basis to be used by reference whenever appropriate in the making of agreements in the future and to cover such defense projects, if any, the post-war disposition of which has not previously been specifically provided for:

"A: All immovable defense installations built or provided in Canada by the Government of the United States shall within one year after the cessation of hostilities, unless otherwise agreed by the two Governments, be relinquished to the Crown either in the right of Canada or in the right of the province in which the same or any part thereof lies, as may be appropriate under Canadian law.

"B: All moveable facilities built or provided in Canada by the Government of the United States shall within 1 year after the cessation of hostilities, unless otherwise agreed by the two Governments, at the option of the United States Government:

(1) be removed from Canada;

or

(2) be offered for sale to the Government of Canada, or with the approval of the Government of Canada to the Government of the appropriate Province at a price to be fixed by a Board of two appraisers, one to be chosen by each country and with power to select a third in the case of disagreement.

"C: In the event that the United States Government has foregone its option as described in B (1), and the Canadian Government or the Provincial Government decides to forego its option as described in B (2), the facility under consideration shall be offered for sale in the open market, any sale to be subject to the approval of both Governments.

"D: In the event of no sale being concluded the disposition of such facility shall be referred for recommendation to the Permanent Joint Board on Defense or to such other agency as the two Governments may designate.

"The principles outlined above shall reciprocally apply to any defense projects and installations which may be built in the United States by the Government of Canada.

"All of the foregoing provisions relate to the physical disposition and ownership of projects, installations, and facilities and are without prejudice to any agreement or agreements which may be reached between the Governments of the United States and Canada in regard to the post-war use of any of these projects, installations, and facilities."

I have today been directed to inform you that this Recommendation has been approved by the Government of the United States of America, which would welcome confirmation from you that it has likewise been approved by the Government of Canada.

Accept, Sir, the renewed assurances of my highest consideration.

A true copy of the original signed by—

LEWIS CLARK,
Chargé d'Affaires ad interim.

THE RIGHT HONORABLE THE SECRETARY OF STATE FOR EXTERNAL AFFAIRS,
Ottawa.

EXHIBIT No. 1092

[EXHIBIT C-1]

[Air mail]

WAR DEPARTMENT,
Washington, May 23, 1942.

STANDARD OIL COMPANY OF CALIFORNIA,
San Francisco, California.

GENTLEMEN: As a defense measure, our Government has decided to develop the oil resources at Norman, District of MacKenzie, Canada, to construct and operate a pipe line between that point and Whitehorse, the Yukon, and to construct and operate a refinery to produce 100-octane gasoline and other petroleum products at Whitehorse, the Yukon. The products of this refinery are needed for military use in that region.

We are employing competent engineers and contractors of proven ability to design and construct the facilities. However, it is obvious that the designers should have technical advice of the highest order regarding the characteristics of both the pipe line and the refinery for year-round successful operation.

The Chief of Engineers of the United States Army, Washington, D. C., is in charge of the project.

You are requested to make available to the United States the services of your Mr. H. H. Hall and Mr. Sidney Johnson as consultants both to the officers of the United States and to the designers of the facility, together with such supporting organizations of your company that can be made available. It is further requested that these gentlemen be made available without delay.

Your early favorable consideration and reply to this request will be appreciated.

Sincerely yours,

HENRY L. STIMSON,
Secretary of War.

[EXHIBIT C-2]

[Air Mail]

WAR DEPARTMENT,
Washington, May 23, 1942.

STANDARD OIL COMPANY OF CALIFORNIA,
San Francisco, California.

GENTLEMEN: Reference is made to my letter of today relative to the oil production facility proposed for Norman and Whitehorse, Canada.

You are requested to undertake the operation of both the pipe line and the refinery for the United States.

This matter can be made the subject of conferences either at Washington or at San Francisco as to contractual arrangements and other details at your convenience.

This project is considered essential to our war effort in that region and it is for that reason I am making this request. An early reply to this letter will be appreciated.

Sincerely yours,

HENRY L. STIMSON,
Secretary of War.

[EXHIBIT C-3]

Letter Contract No. —
 WAR DEPARTMENT, WASHINGTON, D. C.,
 May 25, 1942.

STANDARD OIL COMPANY OF CALIFORNIA,
San Francisco, California.

GENTLEMEN: The Secretary of War having requested the Standard Oil Company of California to perform certain consulting services and to make available to the United States their facilities in connection with the design and development of the following structures:

a. A four-inch, above ground, noninsulated, crude oil pipe line approximately 550 miles long with necessary access roads including bridges, ferries and stream crossings, pumping stations, communication system, loading facilities, and appurtenant structures capable of delivering a minimum of 3,000 barrels per day (approximately 1,000,000 barrels per year) of crude petroleum produced near Norman, District of MacKenzie, Canada (hereinafter referred to as "Norman Area", to Whitehorse, the Yukon, Canada (hereinafter referred to as "Whitehorse").

b. Terminal storage facilities at Norman Area with a minimum capacity of approximately 200,000 barrels of crude petroleum and other petroleum products produced at Norman Area.

c. Terminal storage facilities at Whitehorse with a minimum capacity of approximately 300,000 barrels of crude petroleum obtained from the Norman Area.

d. A suitable refinery under the unusual conditions existing to produce 100 octane number aviation gasoline and other petroleum products to the extent practicable from the crude petroleum obtained at Norman Area with a minimum capacity of approximately 3,000 barrels per day (approximately 1,000,000 barrels per year).

e. Oil storage facilities for the several petroleum products to be produced by the proposed refinery at Whitehorse with a minimum total capacity of 300,000 barrels.

f. Such additional non-manufacturing facilities necessary for the successful operation and use of the pipeline, refinery and appurtenant structures.

And whereas, the Secretary of War has requested the Standard Oil Company of California to consider the operation of the pipe line, pumping stations, refinery, and storage facilities being constructed for the Canol Project, the United States of America (hereinafter called "The Government"), acting through its contracting officer, hereby places an order with you that you shall in the immediate future furnish to the United States and its agents, consulting services, including the use of your laboratory facilities, and do all things necessary to accomplish the following:

Item 1. The design of—

a. A four-inch, above ground, noninsulated, crude oil pipe line, approximately 550 miles long, with necessary access roads including bridges, ferries, and stream crossings, pumping stations, communication system, loading facilities, and appurtenant structures capable of delivering a minimum of 3,000 barrels per day (approximately 1,000,000 barrels per year) of crude petroleum produced near Norman, District of MacKenzie, Canada (hereinafter referred to as "Norman Area"), to Whitehorse, the Yukon, Canada (hereinafter referred to as "Whitehorse").

b. Terminal storage facilities at Norman Area with a minimum capacity of approximately 200,000 barrels of crude petroleum and other petroleum products produced at Norman Area.

c. Terminal storage facilities at Whitehorse with a minimum capacity of approximately 300,000 barrels of crude petroleum obtained from the Norman Area.

d. A suitable refinery under the unusual conditions existing to produce 100 octane number aviation gasoline and other petroleum products to the extent practicable from the crude petroleum obtained at Norman Area with a minimum capacity of approximately 3,000 barrels per day (approximately 1,000,000 barrels per year.)

e. Oil-storage facilities for the several petroleum products to be produced by the proposed refinery at Whitehorse with a minimum total capacity of 300,000 barrels.

f. Such additional nonmanufacturing facilities necessary for the successful operation and use of the pipe line, refinery, and appurtenant structures.

IT IS UNDERSTOOD AND AGREED that—

a. *Payment.*—The Government shall reimburse the Standard Oil Company of California for all expenses incurred by the Company in connection with the consulting services furnished, including the use of the Company's laboratory and other facilities in connection with the design of the Norman-Whitehorse pipe line, including pumping stations, terminal-storage facilities at both Norman and Whitehorse, a suitable refinery, and oil-storage facilities for the several petroleum products to be produced by the proposed refinery at Whitehorse. You will receive a fixed fee for the work and services included here, in the sum of _____, and you will be reimbursed for all your actual expenditures in the performance of the work and services covered herein.

It is estimated that the cost of the materials, equipment, work, and services undertaken by you hereunder is approximately _____.

It is contemplated that this letter contract will be supplemented by the execution of a formal contract between you and the Government following, in general, and only insofar as is applicable, War Department Fixed-Fee form of Contract No. 1. That contract will include an appropriate clause providing for the termination of the contract for the convenience of the Government. All applicable contract clauses required by Federal Laws, Executive Orders, and Army Regulations to be incorporated in such contract are hereby incorporated herein by reference and will be incorporated in the formal contract and in all subcontracts hereunder.

No claim arising under this letter contract or any contract supplementing it may be assigned to any person or persons.

Pending the execution of such formal contract, each subcontract, orders for materials, equipment, other expenditures, and any commitment made in furtherance of the performance of this letter contract, entered into by you for a sum in excess of \$2,000 shall be subject to the written approval of the Contracting Officer.

Funds for carrying out this work have been appropriated and are now available for use of the War Department under the following procurement authority: Eng 30729 P 430-99 A-0905-23.

In the event the Government is unable to negotiate with you a satisfactory contract to supplement this letter contract prior to June 30, 1942, this letter contract will terminate and the Government will pay you in full settlement thereof a sum equal to all costs incurred by you in connection with the performance of this letter contract, plus such other sums as have actually been expended by you, in good faith, in settlement of obligations, commitments, and claims which you may theretofore have incurred.

For the original signing of this letter contract the term "Contracting Officer" as used herein shall be deemed to include the Contracting Officer in the Office of the Chief of Engineers appointed for that purpose by the Chief of Engineers. For all other purposes, the term "Contracting Officer" shall mean the Officer appointed as such Contracting Officer by the Chief of Engineers, the successor, or duly authorized representative.

This letter contract shall be subject to the approval of the Secretary of War and shall not be binding unless so approved.

If the foregoing is acceptable to you, it is desired that you so indicate hereon and on the inclosed two copies of this letter and return the original and two copies to the Contracting Officer on or prior to June 1, 1942. Such acceptance will constitute this order a contract.

Very truly yours,

THE UNITED STATES OF AMERICA,
By _____

EXHIBIT No. 1093

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington, D. C., December 1, 1943.

Mr. HUGH FULTON,
Counsel, Truman Committee,
449 Senate Office Building, Washington, D. C.

DEAR MR. FULTON: In your letter of 24 November 1943, addressed to Julius Amberg, you asked the amount of expenditures and commitments in connection with Canol, actually made as of a current date and some approximation of the same figure as of 1 December 1943.

I inclose herewith a tabulation showing the cost of the various phases of the Canol project as of 1 November 1943, and the estimated costs as of 1 December 1943; the date of 29 November 1943 at the head of the tabulation is apparently the date on which the tabulation was made up.

This tabulation has been forwarded to this office by the Office of the Chief of Engineers. The latter office states that the figures for 1 November were prepared in the field and should be accurate. On the other hand, the figures for 1 December were estimated in the Office of the Chief of Engineers in Washington, based on schedules of work, and while they are believed to be reasonably reliable, figures subsequently received from the field may show them to be inaccurate.

Sincerely yours,

HERBERT A. FRIEDLICH,
Lt. Colonel, JAGD,
Assistant.

Cost data, Canol project, Nov. 29, 1943

	Total estimated cost	Cost of project to Nov. 1, 1943	Estimated cost to Dec. 1, 1943	Estimated cost after Dec. 1
1. Pipe line and storage facilities—Watson Lake through Whitehorse to north of Fairbanks and south to Skagway:				
Canol 2, Skagway to Whitehorse.....	\$5, 711, 194	\$5, 611, 194	\$5, 631, 194	\$30, 000
Canol 3, Carcross to Watson Lake.....	7, 219, 917	6, 969, 917	6, 994, 917	225, 000
Canol 4, Whitehouse to Fairbanks.....	21, 115, 625	12, 598, 399	14, 576, 494	6, 539, 131
Canol 5, Fairbanks to Tanana ¹	759, 773	759, 773	759, 773	-----
Subtotal.....	34, 806, 509	25, 939, 283	27, 962, 378	6, 844, 131
2. Waterway project:				
Canol 1A-2.....	8, 749, 070	6, 825, 785	7, 025, 785	1, 723, 285
Canol 1A-8.....	4, 380, 000	4, 380, 000	4, 380, 000	-----
Canol 6, Winter or Crimshaw Rd. ²	7, 574, 000	7, 574, 000	7, 574, 000	-----
Marine operators.....	5, 760, 000	5, 136, 100	5, 184, 000	576, 000
Subtotal.....	26, 463, 070	23, 915, 885	24, 163, 785	2, 299, 285
3. Prospecting at Norman Wells:				
Imperial Oil Co.....	6, 223, 153	7, 177, 100	8, 014, 000	9, 210, 460
Noble Drilling Co.....	6, 591, 717			
Bechtel-Price-Callahan.....	4, 409, 990			
Subtotal.....	17, 224, 860	7, 177, 100	8, 014, 400	9, 210, 460
4. Whitehorse pipe line and refinery:				
Canol 1.....	31, 017, 579	24, 290, 451	26, 050, 451	4, 967, 128
Refinery.....	24, 429, 170	16, 771, 504	18, 565, 454	5, 863, 716
Subtotal.....	55, 446, 749	41, 061, 955	44, 615, 905	10, 830, 844
Grand total.....	133, 941, 188	98, 094, 223	104, 756, 468	29, 184, 720

¹ Deferred

² Completed at time of deletion.

Revised estimate and status of funds, Canol project, Oct. 22, 1943

	Prepared and completed Nov. 1, 1943	Material cost	Shipping cost	Labor cost	U. S. Engineer Department cost	Total—Revised estimate as of Nov. 1, 1943	Cost of project to Nov. 1, 1943	Estimated cost of project after Nov. 1, 1943
1. Pipe-line and storage facilities—Watson Lake through Whitehorse to north of Fairbanks and south to Skagway:								
Canol 2 Skagway to Whitehorse	98	\$2,522,950	\$359,812	\$2,533,568	\$294,836	\$5,711,194	\$5,611,194	\$100,000
Canol 3 Carcross to Watson Lake	85	2,910,377	504,564	3,448,576	356,400	7,219,917	6,969,917	250,000
Canol 4 Whitehorse to Fairbanks	64	9,083,403	1,293,900	9,628,092	1,138,230	21,115,625	12,593,399	8,517,226
Canol 5 Fairbanks to Tanana ¹	1.3	468,173	12,000	240,000	39,600	759,773	759,773	
Subtotal		14,985,903	2,140,276	15,850,266	1,829,066	34,806,509	25,939,283	8,867,226
2. Waterway project:								
Canol 1A-2	85	3,332,425	853,999	4,083,046	479,600	8,749,070	6,825,785	1,923,285
Canol 1A-8	100	2,824,296	656,900	631,854	266,950	4,380,000	4,380,000	
Canol 6, Winter or Grimshaw Rd	2 100	3,036,629	251,751	3,923,228	362,392	7,574,000	7,574,000	
Marine operators	87	1,551,199	540,880	3,333,791	314,130	5,760,000	5,136,100	623,900
Subtotal		10,744,549	2,303,530	11,991,919	1,423,072	26,463,070	23,915,885	2,547,185
3. Prospecting at Norman Wells:								
Imperial Oil Co.	51	3,606,282	249,117	2,015,499	352,255	6,223,153	7,177,100	10,047,760
Noble Drilling Co.	9	3,592,437	202,570	2,562,350	294,360	6,591,717		
Bechtel-Price-Callaham	7.5	1,935,601	23,600	2,205,889	241,900	4,409,990		
Subtotal		9,137,320	475,287	6,783,738	828,515	17,224,860	7,177,100	10,047,760
4. Whitehorse pipe line and refinery:								
Canol 1	58	12,383,646	1,867,511	15,185,732	1,580,690	31,017,579	24,290,451	6,727,128
Refinery	43	13,550,038	1,738,789	7,815,301	1,325,042	24,429,170	16,771,504	7,657,666
Subtotal		25,933,684	3,606,300	23,001,033	2,905,732	55,446,749	41,061,955	14,384,794
Grand total	70	60,802,456	8,525,393	57,626,956	6,986,385	133,941,188	98,094,223	35,846,965

¹ Deferred.

² Completed at time of deletion.

EXHIBIT No. 1094

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington, D. C., 18 November 1943.

Mr. RUDOLPH HALLEY,
*Executive Assistant to Chief Counsel, Truman Committee,
Room 317, Senate Office Building, Washington, D. C.*

DEAR MR. HALLEY: At the October 26th hearing on Canol, the Committee asked for certain information with respect to the so-called Bechtel-Price-Callahan office building in Edmonton (Red Wood Building).

The building had a gross cost of \$259,820 and a net cost of \$219,833, exclusive of furnishings. The net cost represents the direct cost to Bechtel-Price-Callahan. The gross cost includes architect-engineers' plans and specifications and inspection, Bechtel-Price-Callahan general overhead and United States Engineer Department general operating expenses. The architect-engineer costs are charged to engineering. Bechtel-Price-Callahan and United States Engineer Department costs above mentioned are charged to overhead. Cost of the furnishings was \$30,000, which is charged to office furniture and rentals account. The cost of the building and upkeep is charged to the Canol project.

The land on which the building is located is owned by the city of Edmonton and a monthly rental of \$50 is charged. In addition, the lessee is required to pay taxes, which for 1943 are estimated at \$4,000. The lease runs until October 31, 1944. The contractor has a right to purchase the land for \$3,500. The Government has the right to salvage the building and, if it is not removed and salvaged, it becomes the property of the city of Edmonton; salvage proceeds will be retained by the Government. To conform to city fire regulations, Bechtel-Price-Callahan are required to stucco the building if it is turned over to the city of Edmonton. The cost of stuccoing, if the work is done, is estimated at \$4,000, for which amount the contractor will be reimbursed.

I believe that the above information, together with information furnished since the hearing, puts into your hands all information requested at the hearing or since the hearing, except that asked for by Mr. Fulton's letter of 10 November to Mr. Amberg, concerning certain contract information. This latter information is being gathered together and will be furnished you as soon as received by this Office.

If I am wrong in my conclusion as to requested information which is still lacking, please advise me.

Sincerely,

HERBERT A. FRIEDLICH,
Lt. Colonel, JAGD, Assistant.

EXHIBIT No. 1095

WASHINGTON, D. C., April 29, 1942.

COMMANDING GENERAL, SERVICES OF SUPPLY:

Subject: Extensions for fuel supply, Air Corps, in Canada and Alaska.

1. As a result of a conference this forenoon in the office of General Carter with General Street, General Pyron, Mr. Ray W. Smith of the Board of Economic Warfare, and Mr. O. C. Wheeler and Mr. F. B. Bimel of the Standard Oil Company of New Jersey, concerning the possible extension of a crude-oil production and oil-refining operation now owned and operated by the Company at Norman, on the Mackenzie River, west of the Great Bear Lake, Northwestern Territory, Canada, I recommend that the Chief Engineer, U. S. A., be authorized as follows:

2. To arrange with the Company for the drilling of a minimum of nine additional wells in the vicinity of Norman for added production by September 1942.

3. To build or to otherwise acquire such shallow-draft river-freight craft by June 15, 1942, as may be considered adequate to the circumstances, and to operate these between the railhead, at McMarrys Waterways, Alberta, Canada, via the Great Slave and the Mackenzie River to Norman.

4. To survey by air or by ground for a crude oil-pipe line to be built on the most direct and feasible route between Norman and the railhead at Whitehorse, the Yukon, Canada; and to arrange for the construction of a four-inch pipe line on this route (relay pipe if obtainable) with trail connections along the route between proper pumping stations; all with the view and schedule of having this pipe line under operation by September 15th, 1942.

5. To survey the oil-refining operations, adjacent to the West Coast of the United States, to ascertain all available oil refining, cracking plant, gasoline-treating equipment, and tankage which might be in good operating condition but obsolete because of size or daily capacity (500 to 1,000 barrels per day units) and to arrange for the dismantling of such equipment to the minimum extent of 3,000 barrels per day of crude-oil refining, and to arrange for the transporting and erection of this equipment at Whitehorse, The Yukon, Alaska, and have same in readiness for operation by October 1st, 1942.

6. To instruct all Commanders of Engineering Regiments and Highway Contractors now operating and to operate in the area south of Norman to the vicinity of Fort Nelson, to render such aid as may be feasible and proper to any oil companies which may be prospecting the area for crude oil during this season and to report any such developments as may take place.

7. To arrange with the Standard Oil Company of New Jersey to store, for the future use of the Air Corps, U. S. Army, all of the gasoline which may be produced by its refinery at Norman during the operating season of 1942.

8. To arrange to report the progress of these operations monthly.

/s/ J. H. G.

/s/ Approved, SOMERVELL. 4/29/42.

EXHIBIT No. 1096

WAR DEPARTMENT,
HEADQUARTERS, SERVICES OF SUPPLY,
Washington, D. C., April 30, 1942.

SPEX

MEMORANDUM FOR THE CHIEF OF ENGINEERS.

Subject: Extensions for Fuel Supply, Air Corps, In Canada and Alaska.

1. Attached hereto is a memorandum prepared by Dean J. H. Graham, dated April 29, 1942, addressed to the Commanding General, Services of Supply, outlining the results of a conference on the above subject, and making certain recommendations in connection therewith.

2. The recommendations made by Dean Graham have been approved by me. You are requested to take the necessary steps to carry out these recommendations at the earliest practicable date.

/s/ BREHON SOMERVELL,
Lieutenant General, Commanding.

Encl.

Memo 4/29/42.

EXHIBIT No. 1097

EXHIBIT B-3

CRUDE OIL SUPPLY—U. S. ARMY ALASKA BASE—MEMORANDUM RE CONFERENCES
WASHINGTON, D. C.

CONFERENCE APRIL 29TH—9:00 A. M. TO 11:00 A. M.

U. S. Army Representatives.—Brig. Gen. A. H. Carter, Brig. Gen. St. Clair Street, Brig. Gen. Walter B. Pyron, Col. James H. Graham, Col. Carl A. Russell, Lt. Col. James K. Tully, Mr. James C. Rettie, Mr. Ray W. Smith, Captain C. C. Hardin, Secy. of Conference.

Imperial Oil Co. & S. O. N. J. Representatives.—Messrs. F. B. Bimel, Morgan Walker, O. C. Wheeler.

Problem.—To supply U. S. Army bases in Alaska with aviation gasoline and other refined products from the nearest source possible to such bases, thus to eliminate need for importations by tanker. Fort Norman as a possible source had been suggested informally and unofficially to General Carter by Mr. Teagle. It was the purpose of conference to develop this suggestion.

Army's Position.—1. Requirements of 3,000 to 5,000 barrels crude for delivery at refinery to be constructed at most feasible point on Alaska highway.

2. Urgency of having such supply available at the earliest possible date of first degree and cost and economics not a consideration, and problem should be so viewed by Imperial and S. O. N. J.

3. Army understands from explanations at conference that no assurance can be given that adequate supplies can be developed in time to fulfill purpose, but is nevertheless willing to gamble that such supplies will be found and to take responsibility of making available an outlet from the wells to the highway, probably at White Horse. This outlet to be probably by pipe line.

4. Army not interested in institution of a search for oil farther south in basin along or near Alaska highway.

5. Aviation branch of Army to be instructed to aerially photograph prospective route from Norman Wells to White Horse.

6. In event Army required to construct pipe line there are at present available along highway three regiments of engineers available for such work.

7. Re: Financing.—U. S. Government prepared to finance project in part or in whole by methods appropriate to each project, such as, transportation, drilling, pipe-line construction and construction of refinery. They would prefer, however, that the company supervise and take over responsibility of as much of the work as possible and consider that the company should at least take care of the drilling.

Imperial—S. O. N. J. Position.—1. Present potential production Norman Wells approximately 400 barrels per day. Only four wells drilled to date in developed area and of these, one, No. 3, not yet in shape to produce.

2. Company-controlled leases in area approximately 3,305 acres. Acreage beyond this which may be required for development or wildcatting would have to be acquired from provincial government.

3. Staying quality of wells and pool demonstrated for short periods, i. e., approximately 100 days' duration, but if pulled on steadily by larger number of wells, year-round ability of field to support stable production not predictable.

4. Possibility of developing production in amount required by Army uncertain, and no assurance of its realization can be given, although chances considered to be fair.

5. Company has only skeleton organization in area which functions during open water season and does not have the personnel or facilities at present for an extended program. It is thought possible, however, that if two portable rotary units are immediately available, nine producers could be completed this year and the potential production of the field increased to 1,500 barrels per day.

6. Company policy on this whole project remains to be established but—

a. Company definitely cannot finance or participate in financing of the pipe line and probably not in its construction.

b. Company can, within all probability, take care of drilling required, subject to obtaining necessary priorities.

c. Possibility of financing or constructing refinery at White Horse will have to be developed.

7. Transportation facilities to Norman at present limited to small boats and barges on Mackenzie River and tonnage at present available to Imperial for present year is only 125 tons. As transportation capacity is almost entirely used up by existing industries and habitations along route, facilities would have to be increased greatly to handle supplies required under such program as proposed.

CONFERENCE APRIL 30TH—10:00 A. M. TO 10:30 A. M.

U. S. Army Representatives.—Brigadier General Pyron.

Imperial Oil Co. & S. O. N. J. Representatives.—Messrs. F. B. Bimel, Morgan Walker, O. C. Wheeler.

Colonel Graham came in to General Pyron's office and brought a memorandum that has been prepared at 9:00 P. M. the preceding day following the morning conference.

This memorandum, of which see attachment herewith, stated briefly that the U. S. officials authorized the program of constructing a pipe line from Norman Wells to White Horse and the authorization was sufficiently broad to cover the drilling of wells, providing of transportation facilities, financing, etc.

General Pyron asked us to return at 2:00 P. M. for a conference with General Robins, who is apparently ranking general in the Engineering Department.

INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM 9845

CONFERENCE APRIL 30TH—2:00 P. M. TO 3:00 P. M.

U. S. Army Representatives.—Brigadier General Pyron, General Robins.

Imperial Oil Co. & S. O. N. J. Representatives.—Messrs. F. B. Bimel, Morgan Walker, O. C. Wheeler.

1. General Robins, after reading the memorandum by Colonel Graham, commented that ten times the volume of deliveries contemplated by pipe line could be made by barges already available from inland United States Rivers, and at one-tenth the cost and effort, but added that he was prepared to do his best to carry out the orders issued.

2. In answer to questions by General Robins, he was informed

a. That the Company's representative whom he would be called upon to contact regularly with respect to this project would be named perhaps May 1st at a company conference in New York and he would be informed as to who this representative was.

b. That the Company was in no position to undertake the pipe line work.

c. That the Company would undertake the drilling work.

d. That no definite information could be given him at the time as to what the Company could do with respect to constructing a refinery at White Horse.

e. That the transportation facilities on the Athabaska and Mackenzie Rivers was wholly inadequate and additional facilities would have to be constructed.

3. General Robins stated that the only material available for pipe lines was that which could be reclaimed from existing lines in the United States.

4. General Robins advised that the proper authorities in Washington be informed as soon as Company knows number and type of drilling units required.

5. Wooden barges and wooden hull boats for the river traffic would have to be built owing to unavailability of steel. (General Robins.)

6. Appropriations required would be requested at earliest moment possible and estimate of amount of funds needed should be submitted by Company to General Robins without delay. These appropriations would perhaps be authorized by the President direct to Jesse Jones. (General Robins.)

7. General Robins emphasized that full understanding and accord would have to be reached between State Departments of the United States and Canada before definite effect was given to this agreement.

A memorandum was given to Brigadier General Pyron entitled "Development Schedules—Fort Norman," of which copy is attached hereto. This memorandum was prepared following the meeting on April 29th and before any definite program had been authorized by the U. S. representatives. The schedules indicated will require revision to meet the deadlines set in Colonel Graham's memorandum.

Subject: Development of Oil Facilities in Alaska.

Time: April 29, 1942, 9:00 A. M., Rm. 4509, Munitions Building.

Attended by:

Brig. Gen. A. H. Carter
Brig. Gen. St. Clair Streett
Brig. Gen. Walter B. Pyron
Colonel James H. Graham

Mr. O. C. Wheeler
Mr. Morgan Walker
Mr. F. B. Bimel
Colonel Carl A. Russell
Lt. Colonel James K. Tully
Mr. James C. Rettie
Mr. Ray W. Smith
Capt. C. G. Hardin,

Secretary of the Conference

Representing

Fiscal Division, S. O. S.
Operations Division, W. D. G. S.
Resources Division, S. O. S.
Spec. Asst. to Commanding General,
S. O. S.
Imperial Oil Co., Ltd.
Standard Oil Co. of New Jersey
Imperial Oil Co., Ltd.
Operations Division, W. D. G. S.
Operations Division, W. D. G. S.
Chairman, Alaskan Regional Office
National Resources Planning Board
Board of Economic Warfare

EXHIBIT No. 1098

[EXHIBIT B-1]

VILHJALMUR STEFANSSON,
New York City, April 15, 1942.

LOCAL OIL SUPPLY—Yukon, Alaska, and Bering Sea

Alaska itself has some oil prospects but none that could be developed so as to give material quantities of refined products inside two years; success, even with longer time, is problematic. But an adequate field in northwestern Canada can begin delivering several grade of petroleum to Alaska by air this summer, can begin delivering by truck next winter, and can begin delivering by pipe line next spring.

Location and size of field.—The field lies on both sides of the Mackenzie River below Fort Norman, is about 100 miles long down stream, and may be 20 or more miles wide on either side of the river. The present refinery is at Norman Wells, 50 miles down river (northwest) of Fort Norman. (Norman is about abreast of Dawson and Fairbanks.)

Ownership.—The wells and refinery are owned by Imperial Oil, Ltd., of Toronto, which is controlled by Standard Oil of New Jersey. The Imperial office is at 56 Church Street, Toronto 2; the Standard office is at 30 Rockefeller Plaza, New York City.

Sources of Information.—Information about the field, its history and prospects, may be obtained from the Geological Survey of Canada or from either of the above companies.

In New York, a man especially well posted is Eugene Holman, a director of Standard, a recognized authority both on production and transportation. He has visited Norman Wells and is personally familiar with not only that section but the adjoining Yukon Territory and Alaska, where he has hunted.

In Toronto, sound men to consult are Oliver B. Hopkins, Chief Geologist of Imperial, and Ronald W. MacKinnon, Operations Manager for Norman Wells. Of course, the President, Vice-Presidents, and other officials of Imperial are also well informed.

Type of oil.—Norman oil has a paraffin base and a pour-point of 90 below zero, so it can be piped at a lower temperature than ever occurs either at Norman or at any point between Norman and Bering Sea.

History.—The first wells were put in at Norman some two decades ago but were capped for want of local market. When mining operations developed the wells were permitted to flow a short period of each summer and the crude was sold. Three years ago the company installed a Foster-Wheeler refinery. It now produces 87 octane aviation gas, ordinary gas, one or more grades of diesel, and bunker oil. Its largest year was 1938 with 27,696 barrels of crude. An annual average production of 20,000 barrels has satisfied the local market.

Of five wells sunk, three are now flowing; one other is expected to produce when "blown out" in the spring; one has been given up as dry. The flow from the three wells is around 700 or 800 barrels a day; the daily capacity of the refinery is about the same.

Costs.—MacKinnon has said that one of the five wells at Norman is the cheapest producing well Imperial ever drilled. In general the field is one of the cheapest known for cost per well. This is because oil is struck at 1,500 or 1,800 feet; the strata are not difficult to pierce; other conditions average good. Wells can be sunk in any month of the year.

Last year at Norman the prices were: Ordinary gasoline, 30 cents plus 8% tax. 32.4 cents per Imperial gallon; aviation gasoline, 37 cents plus 8% tax.

The Norman oil prices which now prevail would be reduced with increase of production. The past few years it has not been necessary to operate the refinery more than six to ten weeks each season because the only market has been the local one—Bear Lake mining, Yellowknife mining, local aviation and river traffic. If refinery and wells were operated the whole year the saving would obviously be great.

Climate.—The climate of Norman is about the same as that of Fairbanks, Alaska: the climate of the Mackenzie basin is generally about the same as that of the Yukon basin—the Mackenzie being slightly colder, slightly less windy, with considerably less snow in winter. Summer heat runs well above 90° in the shade and wheat has been raised several hundred miles north of Norman, at Thunder River. Fort Good Hope, next post north from Norman, has long supplied the lower Mackenzie with potatoes.

Prospects.—The refinery, as at present constructed, could perhaps operate 6, 7 or 8 months out of the 12. In order to have a 12-month operation the buildings would have to be modified somewhat, especially by the use of insulation and by the installation of heating units. (The heating would be cheap, of course, since local oil would be the fuel.)

Technical men and officers, both of Standard and of Imperial, have given it as their opinion that for 200 wells sunk they will have at least 100 flowings, and that the average daily flow per well will probably be around 400 barrels.

The same men have said that if they are approached by the U. S. and Canadian Governments soon enough so they can utilize during the summer of 1942 the entire navigation season on the Mackenzie, and if they get suitable priorities on machinery and supplies, they will probably be able to raise both the production and the refining at Norman Wells to 5,000 barrels a day within 2 years. (If this be correct, it would seem that a still higher figure could be attained by putting on still more pressure, since the only question apparently is to sink enough wells and to ship in enough Foster-Wheeler units and other equipment.)

Transportation, Summer.—In Summer, freight will go by rail through Edmonton to head of navigation of the Mackenzie River system at Waterways, Alberta, which is right by McMurray, the old Hudson Bay Company Post. At Waterways (McMurray) freight is transferred to river scows, pushed by steamers, and goes down the Athabaska, across Athabaska Lake, and down Slave River to Fitzgerald, where it is unloaded onto trucks.

The trucks carry the freight by one of two motor highways 16 miles past a series of rapids to Fort Smith, where it is again put aboard scows pushed by river steamers. The equipment on those roads will handle (Has handled) single pieces of freight weighing 80 tons.

From Fort Smith the freight goes down Slave River, across Slave Lake, and down the Mackenzie to Norman Wells.

The procedure just described is followed each year from some time in May to some time in October. (Steamboat traffic was old on this route when I first traveled it, in 1906. I made the journey again in 1908. V. S.)

Transportation, winter.—In winter, freight would again pass through Edmonton; but instead of going north by rail to Waterways it will go northwest by rail to the town of Peace River.

North from Peace River to Notikewin is an all-year motor road; from Notikewin to Hay River on Slave Lake is the Grimshaw Highway, a winter road which begins operating each December and continues until the following March or early April.

From Hay River the winter freighting would be across the ice of Slave Lake and down the ice of the Mackenzie River; alternatively the winter road across country would be from Alexandra Falls to Fort Providence.¹

From Providence the freighting would be by truck and tractor-drawn sledge down along the ice of the Mackenzie River to Norman Wells.

Northern rivers are both summer and winter routes.—The Mackenzie River system, then, is usable as a liquid highway for steamers and scows between 4 and 5 summer months; between 4 and 5 winter months it is usable as a trucking road where the ice takes the place of artificial hard surfacing. At most, the described natural highway will be out of operation three months of each year * * * two months in the fall and one in the spring.

There is a detail, that the ice of the various rivers clears out some three weeks earlier than the ice of Slave Lake. The inactive period of this transportation could, therefore, be shortened if there were a railway or an all-year highway approximately following the present Grimshaw Highway from Peace River to near Alexandra Falls and then cutting across to Providence.

The portage to Mayo.—The divide between steamboat navigation on the Mackenzie at Norman Wells and the head of steamer navigation on the Yukon at Mayo is about 300 miles wide; it has been said by one of the officers of the Geological Survey and by two flyers who have been across it to be less than 4,000 feet, and probably nearer 3,000. The Geological Survey man was Joseph Keele, after whom the Keele River is now named, which drains eastward to the Mackenzie from near the headwaters of the branch of the Stewart, which flows

¹ While the present northern terminus of the Grimshaw Highway is at the town of Hay River on Slave Lake, it would no doubt be better to make a Y in this road so that one branch would split off at or near the Alexandra Falls of the Hay River and would run direct to Providence. Thus you would avoid crossing Slave Lake, which freezes later than the small lakes, delaying the opening of winter traffic.

westerly towards Mayo. The flyers are Robert Randall, formerly of Mackenzie Air Service and now perhaps in Edmonton, and Everett Wasson, formerly of the aviation subsidiary of White Pass and Yukon Railways, recently said to have been in California. The first need is a preliminary airplane survey of the portage to check on these reports and determine the approximate best route.

Cost of portage road in money and time.—The Honorable W. A. Falow, Minister of Public Works, Province of Alberta, has written that the Grimshaw winter road in his province is about 385 miles long, that it was built in six weeks, and that the cost was less than three miles to the \$1,000. He says that his department is ready to put in a winter from Norman Wells to Mayo, and that he believes they could do it at approximately the same rate of speed as the Grimshaw Road and at only a slightly increased cost per mile.

Immediate preparations needed.—Arrangement would have to be made with the Province of Alberta (or, if preferred, with a private contractor) early enough so that the required machinery and supplies can be shipped down the Mackenzie to Norman before the close of the steamer service this year. The last freight should reach Norman by the Middle of October; therefore, for safety's sake, the last of it should pass through Edmonton northbound before the middle of September.

Beginning of portage traffic.—The winter 1942-43 traffic by truck and tractor-drawn sledge across the Norman-Mayo portage might not start before late in January or even in February, since the winter road has to be laid out first. In succeeding years traffic will begin in late November or early December and will continue until some time in April.

Laying of pipe line.—While production at Norman is being stepped up gradually, petroleum (as well as freight for Alaska; which has been shipped down the Mackenzie) can be taken across the divide by truck and sledge. If piping is shipped to Norman this summer the pipe line can be laid this winter, 1942-43; if it is preferred not to lay the pipe line until production has reached the first or second thousand barrels per day, then the pipe need not be shipped down the Mackenzie before the summer 1943, whereupon the line can be in operation some time late in the winter of 1943-44.

The pipe would be laid on the surface of the ground (not buried) in the manner already found successful by a pipe line which takes Norman Wells petroleum past a series of rapids on Bear River.

Storage at Mayo.—At Mayo, petroleum (and goods brought over the portage) would be stored to await downstream scow and steamer traffic which begins in May of each year. Or, if there is hurry, the petroleum could be shipped towards Fairbanks by trucks and sledges which can use either the river ice or roads which have been or can be laid out. (For details of roads see Yukon Territory and Alaska road maps.)

Alaska-Yukon distribution of petroleum.—When petroleum scows reach the mouth of the Stewart some of them can be sent upstream along the Yukon (Lewes) to Whitehorse to fuel the airbase there.

On passing Dawson, and other commercial centers, fuel can be left behind for civil or military uses.

Reaching the mouth of the Porcupine, scows can await high water and can then be sent well up that stream. But this will have to be done in a hurry, for the Porcupine is not a good steamboating river.

On reaching the mouth of the Tanana, scows can be sent up that river to Nenana, near Fairbanks, for use of military and civilian establishments there.

If desired, petroleum can be shipped south from Fairbanks, along the railway to Anchorage, to fuel the Army base there and the Navy base at Kodiak. You can also ship by truck over the highway from Fairbanks to Valdes and Anchorage.

On reaching the vicinity of Russian Mission, petroleum can be taken 20 miles across a 20-foot high divide to the Kuskokwin River, and then shipped up and down that stream. Either you would store the petroleum at the portage to await the freeze-up and take it across by truck when the swamps have hardened, or you would dig a barge canal between the two rivers.

At the mouth of the Yukon (at St. Michael or elsewhere, would be created a fuel depot for the use of our Navy. The distance to the Navy base at Dutch Harbor is about 800 miles. There would be less danger per mile from the enemy on this Bering Sea route than on the 2,300-mile Pacific route from San Francisco to Dutch Harbor.

If desired, surplus gas and heavy oil could be supplied by the St. Michael's fuel depot to airplanes and ships of our Allies. This would be specially important for the Soviet Union in connection with their use of the Northeast Passage.

Sources of information.—This outline is based, in the main, on the following sources:

1. Interviews with and information supplied by Dr. Charles Camsell, Deputy Minister, Department of Mines and Resources, Ottawa. This includes published and unpublished information supplied by technical men in Dr. Camsell's department.

2. Interviews with Robert Randall, Everett Wasson, and W. A. Fallow. As Minister of Public Works of the Province of Alberta, Mr. Fallow has supplied information about the Grimshaw Highway and has given information and opinions on most points covered in this outline that are territorially between Edmonton and Mayo.

3. Interviews with and written information from officers and technical men of Standard Oil of New Jersey, Imperial Oil of Toronto, and Abasand Oils of Edmonton.

4. The personal background of this outline is that I traveled north down the Mackenzie from Edmonton in 1906 and in 1908; in 1907 I walked across the divide between Mackenzie and Yukon waters (but farther north than the Norman-Mayo divide, abreast of Fort McPherson); in 1907 and again in 1918, the first time in summer, the second time in winter, I traversed the Porcupine to the Yukon; on both occasions I went up the Yukon in summer from the mouth of the Porcupine through Dawson and Whitehorse; in 1940 I spent a month in Fairbanks and other parts of Alaska, and at Whitehorse, interviewing fliers and other knowledgeable men; in late November 1940, I flew from Whitehorse to Edmonton with Yukon Southern (by way of Fort Nelson).

Statements similar to this one have been examined by officers and technical men of Standard Oil of New Jersey, Imperial of Toronto, and Abasand of Edmonton, and by the Minister of Public Works of the Province of Alberta at Edmonton. All these have expressed general agreement, but none are to be held responsible for any specific statement.

See Supplementary Statement, page 9.

VILHJALMUR STEFANSSON.

SUPPLEMENTARY STATEMENT

The preceding memorandum has discussed expanding the present refinery at Norman, and this should undoubtedly be done, but two limits should be kept in mind:

1. Whenever the pipe line begins to function, a refinery somewhere on the Yukon River should begin functioning at the same time. For you can pipe Norman crude in Winter but you cannot pipe the heavy oils which result from the refining.

2. The expansion of the Norman refinery should halt at a point where it is capable of supplying all needs east of the Rocky Mountains. These needs will include:

(a) Shipment south (upstream) along the Mackenzie, perhaps to include shipments by rail south from McMurray.

(b) Shipments intended for Route C that go up the Liard and Nelson at periods of high water.

(c) The supply of the rapidly expanding mining industry of the Yellowknife and other mineral regions.

(d) Shipment down the Mackenzie River and eastward along the north coast of Canada to serve airplanes and ships that function along the routes of the Northwest Passage.

V. STEFANSSON.

EXHIBIT No. 1099

REPORT ON PETROLEUM PRODUCTION AND FUTURE POSSIBILITIES OF THE MACKENZIE RIVER DISTRICT, N. W. T., CANADA

In conformity with instructions given me by the Director, Foreign Division, of the Office of the Petroleum Coordinator under letter of August 26th, 1942, the following report is submitted. The various subjects are treated in the same sequence as in the letter of instructions.

TAR SANDS

Two days were spent at the Abasand Company plant near McMurray, Alberta. Mr. Max Ball, president of the company was not there, but I had the good fortune to encounter Mr. S. C. Ellis, of the Canadian Geological Survey, and Mr. McClave, designer of the plant. Both men have been friends of mine for many years and gave me complete information regarding operations.

Changes are being made frequently in methods of mining and extraction, since it must still be considered as experimental. One of the most important discoveries is that proper spacing of shot holes will so soften the sand that it can be picked up from the face of the quarry by steam shovel and needs no crushing or other treatment before going to the extracting process. This type of blasting seems to soften the entire mass of the oil sand. The cost is said to be six cents per ton.

The method of transporting from the quarry to the extractor can be improved in another set-up. Now, the sand is picked up by power shovel, put in trucks and hauled up an incline some 25 feet where it is dumped on a platform. A bulldozer slowly pushes it on to a conveyor belt which elevates it to the extractor. Mr. McClave plans to change this set-up, when material is available, to utilize conveyor belts and eliminate the need for trucks. Some sort of continuous feed from a hopper by screw might serve to break up the larger lumps and at the same time graduate the feed to the belt. This has its drawbacks, since the sand is sharp and very abrasive. Any metal moving against the crude sand is soon work away. Steam shovel teeth must be replaced about twice a week.

The method of extracting is a simple process of agitating the crude sand in hot water (180 F.). This is done in a revolving cylinder with inside baffle plates. The crude sand enters at the upper end of the cylinder, which is about 25 or 30 feet long and inclined about 5 or 6 degrees. It rotates on roller bearings like a ball or rod mill and at the same speed. The bath of hot water "dissolves" the sand and the entire mixture of washed sand, oil, emulsion and a continuous stream of hot water flows from the lower end of the cylinder to a separating tank. The average yield is one barrel of oil per ton of sand. In this tank the sand settles to the bottom and is picked up by a pair of screw conveyors which elevate it from the inclined far end of the tank, where it is passed to a similar tank for recovery of an additional $\frac{1}{4}\%$ of oil. It then passes to the dump as clean sand. The operation of these two tanks is similar. The oil and emulsion rise to the top and are skimmed off by a series of paddles. This mixture of oil and emulsion contains a substantial amount of fine sand or silt which does not settle out in either tank. It is run to a Dorr rotary classifier where the temperature is maintained and there mixed with an equal amount of lighter fraction of about signal or light Diesel oil grade. This process reduces the emulsion and frees the sediment and the oil is then piped to storage for the refinery. Plant capacity is said to be 200 tons (or bbl.) per day. Both Diesel oil and gasoline are made in the refinery. Still gas and coke supply the needed fuel for operating the entire plant.

The asphalt, which is a considerable part of the refined products is of excellent grade and should be found useful for surfacing of airport runways and aprons in the northern area. It does not check and crack in the extremely low temperatures, as does concrete.

In my opinion, improvements can be made in some of the operations, and costs can be substantially reduced.

One of the difficulties will always be that of disposing of the waste sand, since the Canadian Government insists that it be kept out of the streams and rivers. Mechanically, the sand can be economically mined and extracted, but freight rates are still a barrier to completion in the areas south of McMurray in all products except asphalt. The following is a memorandum by S. C. Ellis. (quote.)

In an emergency, extracting plants can be set up cheaply and quickly and the waste sand dumped in the river. The problem then is that of refining any low-grade asphaltic crude.

NORMAN WELLS

I contacted Mr. Paul Lambright in Edmonton. He arranged to meet me, together with Dr. T. A. Link, Imperial Oil Co. geologist, in the field at Norman Wells. Both he and Dr. Link placed all of their data at my disposal.

The following information and my opinions are based on a reconnaissance trip through parts of the area, and the data are supplemented with information

obtained from the geology department of the Imperial Oil Company, publications of the Canadian Geological Survey, and conversations with geologists familiar with the area.

It appears that a region averaging 100 miles wide and some 600 miles long following more or less the course of the river may contain potential oil fields. However, this is a matter for careful prospecting, and the time necessary for discovering oil fields is an unknown quantity. Sufficient mapping has already been done to give us an excellent idea of the major structural features of the region, besides locating several small areas on which locations can be made with very little additional work.

The formations which can be expected to be oil-bearing range from Ordovician to late Devonian, and the thickness of this sedimentary section will probably approximate 8,000 to 10,000 feet. The Ordovician is mentioned in the Geological Survey of Canada, publication No. 1097, entitled "A Reconnaissance Across the Mackenzie Mountains on the Pelly, Ross, and Gravel Rivers, Yukon and Northwest Territories," by Joseph Keele. Keele makes the interesting comment that the rocks on the southeast side of the Mackenzie River are made up predominately of sand and gravels characteristic of shallow-water deposition, while to the east the sediment grades into a dip. This was especially noted where these sediments outcrop in the mountainous folds along the Mackenzie River. Here the sediments are largely shale and limestone. At one point, 25 miles northwest of Norman Wells, a massive limestone series was observed changing into shale as the formation was traced to the northwest.

In my opinion, the two formations which should be given attention at this time are the Silurian, which is not known to be oil-bearing but which is represented by a thick shale, limestone, and gypsum section in the Mackenzie River basin, and the overlying Devonian which is made up of a lower limestone and shale section and an upper shale and sandstone section. The present producing horizon at Norman Wells is a limestone reef in the base of the upper shale section and immediately overlying what is known as Ramparts Limestone. I wish to state here that in my opinion it is not safe to make long-distance correlations at this time due to the recent changes in the nature of the sediments and the possibility that the so-called Rampart Limestone may not be the equivalent of the limestone which has been given that name at Norman Wells. The Fort Creek Shales cover the reef material, which is being called Beavertail Limestone, and appear to be very rich in petroleum. They may furnish the petroleum which is being found in the porous coral limestone of the reef material.

Above the Fort Creek Shales is the Norman Sandstone, and in the vicinity of Norman Wells it is well saturated with oil, possibly giving rise to the oil seepage on Seepage Lake immediately north of the Wells. This is a rather peculiar phenomenon, since there is no evidence of any type of structural trap which could have caused the accumulation.

Unconformably overlying the Devonian series in the deeper parts of the basins are Upper Cretaceous shales, in some places containing coal and sandstone. Above the Cretaceous beds is an Eocene sandstone series.

The soft nature of the Cretaceous shales gives rise to a rounded topography, with deep residual soil. This and the overlying glacial drift adds greatly to the difficulty of making any detailed structural studies in the low-lying country. The difficulty of finding sufficient outcrops in the flat country, added to the difficulty of traveling through muskeg and swamp, makes it appear that reconnaissance should be limited to areas of more topographical relief and where definite lines of folding have already been indicated. In this connection, and considering the need for a limited number of wildcat wells to test the petroleum possibilities of the region, it is felt that sufficient reconnaissance work has already been done by the Canadian Geological Survey and the Imperial Oil Company to facilitate the making of locations by a limited number of men doing detailed reconnaissance work.

The most valuable contribution to the knowledge of the geology of the areas has been the work previously mentioned, and especially the subsurface studies made by Mr. O. D. Boggs, resident subsurface geologist at Norman Wells for the Imperial Oil Company. I am submitting a report made by Mr. Boggs to the Imperial Oil Company under date of August 27, 1942, and which he and the company have kindly consented to release for this report. I have checked the samples on which his report is based and find no essential points on which I can differ from his conclusions. The maps and profiles which accompany Mr. Boggs' report appear to be a careful compilation of the necessary data and give an excellent idea of what can be expected regarding the size of the producing area.

A core recovered from one of the wells shows very clearly the reef nature of the limestone, and since it also includes the contact with the overlying shale as well as some intercalated shale and limestone, it appears that the limestone is undoubtedly a reef. It also should be noted that Mr. Boggs points out that the wells which produce oil from the overlying shale are on the top of the structure and that the oil found in the crevices in the shale probably comes from the underlying reservoir. The wells which have been drilled "off structure," although they find the shale to be of a rich bituminous nature, do not yield any production from the shale. It will be noted also from Mr. Boggs' profile that the thickness of the bituminous shale is quite variable. It is thinnest over the top of the reef and thickest where the reef material is thinnest, so that the total thickness from the top of the bituminous zone to the base of the limestone is practically a constant figure, and, like other markers above and below, shows the regular monoclinical dip away from the mountains. This is further proof that the accumulation is not on any anticlinal fold and emphasizes the difficulty of finding a similar accumulation in the region, since dips which might give a clue to the location of an anticline will not be of any assistance in the location of another reef. On this account it appears advisable to prospect what are known to be anticlinal folds in the hope that formations below the reef material will prove to be oil-bearing.

I made a careful examination of all the samples from well No. 3 which was drilled to a depth of 2,702 feet and which penetrated into the Silurian section. Well No. 3 encountered the top of the reef at 975 feet below sea level (elevation assumed 300 ft.) and the base of the lime at minus 1,170 feet, or a depth of 1,470 feet. Below this point I found drill cuttings from the limestone, which gave free petroleum when placed in chloroform, from a depth of 2,100 feet (probably lower Devonian), 2,410 feet, and also a dolomitic limestone which showed free petroleum in all of the samples between 2,560 and 2,660 feet. These limestones were similar in fine, granular texture. The immediate area is located on a monocline dipping some 5 degrees and it appears curious that any accumulations would be found in the limestone, but this is probably due to differential porosity and the tight nature of the limestone. However, it indicates the oil-bearing nature of the formations and makes it imperative that test wells be drilled in structures already mapped where these same formations will be found under sufficient cover to retain the oil.

Judging from the data contained in Mr. Boggs' report it will be seen that the area expected to produce will comprise approximately 240 acres. The lime has many "soft streaks" as shown by quick drilling time and the failure to recover cores from these same zones. Since it is nearly 100% soluble in HCL it is believed that acidization will aid greatly in maintaining production. "Five spotting" of the wells will also be advisable, since the present 800-foot locations are too far apart for rapid drainage and the low cost of the well renders it practicable.

Judging from the wells in southeastern New Mexico which produce from a similar reservoir, I estimate a recovery of 20,000 bbls. per acre for the 240 acres. I have already indicated to Col. Wyman that I believe he is safe in planning for 3,000 bbls. per day for a minimum period of two years by interspacing wells and using acid.

A supply of 3,500 gallons of acid is now en route to the field and will be tried as soon as possible.

One cable tool rig is now completing a well between two drilled by rotary and on the same contour. This will give some information on the effect of rotary mud on the porous zone. The drilling time is about equal for the two types of drills.

As for possible reserves outside the area now proven, there are several structures in the general vicinity which should be tested. Until these are tested, utilizing the drilling equipment already at Norman Wells, it will not be possible to do much planning of any additional drilling or pipe-line construction. I have recommended to Col. Wyman that the known structures be tested without further delay.

One of these structures which has already been mapped by the Imperial Oil Company and the Canadian Geological Survey is sufficiently close to existing transportation lines that it should be drilled as the first test well outside the present producing area. I made one reconnaissance trip over this structure, known as Hoosier Ridge and found it to have a closure measured in hundreds of feet and to have the Beavertail Limestone at the surface. This would indicate a depth not to exceed 2,000 ft. to test all of the possibilities previously men-

tioned in the formations I encountered in well No. 3. Furthermore, the drilling equipment already at Norman Wells is adequate for this test.

Should oil be found in Hoosier Ridge it immediately opens up the possibility of production on some 4 or 5 other structures in the immediate vicinity, but they should be carefully detailed in order to determine closure and depths. It is also possible that Hoosier Ridge will produce sufficient oil to supply the pipe-line project. However, no planning should be done in this regard until oil is found, since it may not be adaptable to pipe line in this climate. If no new oil is found the present production will be needed to supply a refinery at Norman Wells, and there will be no surplus remaining for pipe lining to White Horse. It should also be pointed out that any additional fields discovered in the region may not yield oil suitable to pipe-line transportation in the extremely low temperatures of the Arctic, and because of this I recommend that pipe-line construction be held in abeyance until after the test wells have been drilled.

So much time is required in developing a field and building a refinery that a pipe line can be planned and installed by the time the desired production is secured and a suitable refinery is built.

Other prospects that Hoosier Ridge (1) which have been recommended by T. A. Link are indicated on the accompanying map (Fort Norman Area). Prospect No. 2 is known as Jungle Ridge. Seen from the air, it appears to be a closed structure. It offers shallow possibilities in the Norman Sand as well as the Beavertail Limestone. If productive in these zones it may offer possibilities in the lower Devonian and Silurian. Vermillion Creek (No. 3) is in the same category as No. 2. I concur in both of these recommendations. Number 4, Carcajou Ridge, has the Beavertail Limestone at the surface. It is a very steep fold with one limb almost vertical. I do not recommend drilling it unless Hoosier Ridge is found productive. Hoosier Ridge has a maximum of 60-degree dips, but over most of the structure the dips do not average more than 20 degrees.

Prospect No. 5, designated by Dr. Link as "Halfway Structure" because of its location near Halfway Island, shows no proof of closure. It may contain a reef at shallow depth, but this is based on no specific data. I do not recommend this location.

Prospect No. 6 is in the same class as No. 5. Dr. Link recommends it because of the seepage at Seepage Lake. It *may* be over a reef, but there is no indication of it.

Prospect No. 7 is an area where dips in Upper Cretaceous beds indicate an anticline. Since this would provide a test to include the Norman Sandstone it should be the subject of careful detail work before making a location. Such work has been recommended to Dr. Link.

PIPE LINE

With the exception of a one-hour flight in Col. Wyman's private plane, which he placed at my disposal during one of his visits to the Wells, I was unable to do any aerial reconnaissance of either geology or pipe line route. However, on the plane coming and going to and from Norman Wells, I was able to obtain considerable information on the regional structure.

There was a decided shortage of planes for all purposes, including bringing in necessary supplies. The pontoon plane based at Norman Wells, which had been there a month for making a mosaic of the basin was placed at my disposal by Col. Wyman, but its motor was in such bad condition that the pilot would not take it away from the river. By the way, no photographs have been taken by this plane in more than a month. During this time there were only one and one-half days of suitable weather, and the lack of repairs kept it grounded. This lack of any base map for either general or detailed reconnaissance will be a serious handicap in the geological work.

There are supposed to be photographs of the proposed pipe line route taken by the Army, but Col. Lyman, in charge of operations at the Wells, appeared to be unable to get them for me, although he made requests to the contractor's camp. Because of this lack of photographs and a plane for aerial observation, I am unable to make any comments on the route selected. However, I wish to submit some comments on conditions in the general area which I believe worthy of consideration before present plans are put into effect.

The region southwest of the Mackenzie Mountains appears to have less prospects of producing oil than the Mackenzie River Basin. It is characterized, according to existing maps, by series of hills and mountain ranges which make pipe-line laying and maintenance difficult.

Once a line is laid it cannot be readily moved. The present project calls for a four-inch line which can normally run some three thousand barrels per day of the type of crude now being produced at Norman Wells. This amount is about all the field can be expected to produce. If the line is operated to capacity it will not supply a very important amount to White Horse.

Dr. G. S. Hume, geologist of the Canadian Geological Survey who mapped the Fort Norman region and is familiar with all conditions in that area, told me in Calgary that the Fort Norman oil begins to show free paraffine at -7°F . This is a different figure than was given to the Army Engineers and should be immediately investigated.

If true, it will mean that the line can only be used six months out of the year, since it is planned to lay it on top of the ground.

This is another matter for careful investigation, since the annual range of temperature of the air is very great; from 110 above zero to 70 below. It may be even greater in the mountain passes. Certainly the line will not remain long on top of the ground, but in most places, especially the swamps and muskeg, will sink below the surface and be frozen in. There will then be the danger of parting in the extremely low temperatures.

Pipe lines are buried, normally, to prevent this. Tests with trial length of welded line can be tried this winter to see what can be expected under working conditions.

The only other alternatives are to bury the line or to place it on a corduroy road so the expansion loops are free to function. Burying the line presents difficulties, since there is perpetual frost to depths of 85 to 115 feet. During the summer the ground, where it is covered by muskeg, thaws to a depth of about two feet; more in the barren ground. To make a trench it will first be necessary to clean off the muskeg moss covered areas as soon as the upper frost starts to thaw and to skim off the soil as the summer sun thaws out the exposed ground. There is then the problem of keeping the ditch drained where it crosses level ground. Plans are being considered for additional prospecting to find oil for another project. This is for an additional 8-inch pipe line some 800 miles in length, to Fairbanks, Alaska. This is based on the assumption that fields capable of supplying the line will be found and developed in time to fit into the war plans for the region. The same difficulties of pipe line transportation will be encountered in this project. In my opinion, there are so many important factors to be considered in this regard that the chiefs of both military and naval strategy should confer with the experts in oil production and transportation now called into Government service.

Apparently, the balance of naval power in the Pacific has changed favorably since the initiation of the first project. On the other hand, the shortage of steel is said to be more acute.

It is possible that the material necessary for developing and transporting oil in the Fort Norman area can be used to advantage in some other way. The steel required for the pipe line alone can be used to build tankers, and destroyers to convoy them, at an earlier date than oil can be developed and a pipe line laid to deliver it. Furthermore, tankers can deliver oil at more than one point and fit into a mobile strategy, whereas a pipe line cannot. Also, the system of highways, through what is now almost impassable terrain, and which is necessary to the development of this project, could be used by the enemy, together with any newly discovered oil fields, to bring an attack overland to Canada and the United States. At present, Yukon and North West Territories offer an excellent barrier to an enemy occupying Alaska.

PROSPECTS IN AND NEAR ALASKA

There are authentic reports of oil seepages west of Aklavik, on the lower Mackenzie River. Little is published on the geology of this region, but I have talked with trappers and traders familiar with the country who say that the same type of sediments as outcrop in the mountains of the Mackenzie River Basin, are found in the Richardson Mountains, between the Mackenzie River and Porcupine River. Any oil fields found there would be much nearer Fairbanks than is the Norman Wells field.

Another area which appears worthy of prospecting is northern Alaska. Many large oil seepages are known in the region north of Brooks Mountains and also near Point Barrow. Seepages are known along Colville River, and the United States Geological Survey has considerable unpublished data with respect to the geology of this area so that development could start at an early date. Naval





Reserve No. 4, which is a large reservation south and west of Point Barrow has been examined for the Navy by the United States Geological Survey and no doubt plans have been considered for its development.

This appears worthy of immediate investigation, since it would mean a possible oil supply, not only in our own territory, but much nearer the vital bases in Alaska where it can be used in offense as well as defense and where transportation problems are no more difficult than in Canada. At the same time, the building of roads and airports would be of lasting benefit to the United States. I am reliably informed that Mr. Ernest Sawyer, a member of the Alaska Highway Commission first called to the attention of the army the desirability of providing a fuel supply for planes to be used in the defense of Alaska. Next, an explorer by the name of Stefansson, who is much better known in northern Canada than in the United States, came to Washington to interest our Government in utilizing the "unlimited" oil resources of northwestern Canada in the war program. It should be pointed out that Mr. Stefansson is an agent of the Canadian Pacific Railway which owns Canadian Pacific Airlines. This company is operating airlines and airports at the same points where the U. S. Army Engineering Corps is now building landing fields. I believe this may explain, to some extent, the earlier, overenthusiastic reports on the importance of the Ft. Norman area.

RECOMMENDATIONS

In view of the time required for geological reconnaissance in a search for additional structures, which must be considered as of doubtful value since only one field is known in the area, it does not appear desirable to bring in any additional drilling equipment until the known structures previously mentioned have been tested. The portable drilling rigs now at Norman Wells are sufficient to make these tests and to complete the program in the present field during the coming winter. Sufficient equipment for this work is already on hand or in transit.

Should additional fields be discovered they should produce sufficient oil to meet the needs of the original program. On the other hand, if they prove unproductive, the search for other structures may not be advisable. Should Hoosier Ridge, Jungle Ridge, or Vermillion Creek prove to be normally productive oil fields, there are sufficient drilling rigs (4) at Norman Wells to secure the production needed for the four-inch pipe line planned to White Horse, since the wells will not exceed 2,000 feet in depth.

In conclusion, I cannot too strongly recommend that the operations of finding, producing, and transporting oil be placed in the hands of men thoroughly familiar, by training and experience, with the various phases of the business. To be successful it requires careful coordination and collaboration by proven experts.

Respectfully submitted.

GLEN M. RUBY,
Consulting Geologist.

OCTOBER 3, 1942.

EXHIBIT No. 1100 faces this page

EXHIBIT No. 1101

IMPERIAL OIL, LTD,
56 CHURCH STREET, TORONTO, CANADA,
May 2, 1942.

Brigadier General A. H. CARTER,
Washington, D. C.

DEAR SIR: After reviewing the memorandum dated Washington, April 29, 1942, Subject: Extensions for Fuel Supply Air Corps in Canada and Alaska—copy of which was given to our representatives—we feel it incumbent upon us to place before you certain observations as to the sections thereof which refer more particularly to operations suggested for our Company. Before doing so, however, we would like to say that the observations are submitted in a spirit of cooperation, and, if it is finally concluded to proceed with the

plans as outlined in the memorandum, our Company is ready to cooperate in every way possible.

With reference to Article 2 of said memorandum, which reads as follows:

"2. To arrange with the Company for the drilling of a minimum of nine additional wells in the vicinity of Norman for added production by September 1942."—

we feel the following facts should be kept in mind:

(a) In the so-called Norman pool five wells have up to this time been drilled, four more or less together and one about three miles distant from said group. Of these five wells only three can be called producers. Two of the producers are only 150 feet apart and the third is less than one-quarter of a mile distant from these two producers. The fourth well to date is nonproductive but we still are endeavoring to make a producer out of it. The fifth well, which is approximately three miles from the producers, was a dry hole. Accumulation of oil in this pool is controlled either by the existence of a shattered shale horizon or a very poorly developed sand lens and the lateral continuity of either of these conditions may be too limited for the development of any more than a very small pool. We should add that two additional dry holes were drilled about five miles to the southeast of the Norman wells in an endeavor to extend the field in that direction.

As our representatives pointed out, the possible drilling program which they outlined was based on a more or less hazardous assumption that locations with reasonable prospects of success could be found for forty-five wells, but we should emphasize the fact that we have no knowledge of the extent of this pool and no assurance whatsoever that productive locations for this number of wells could be found. The foregoing uncertainty suggests the advisability that any program of drilling in the Norman field should be supplemented by exploratory drilling on other prospects in the Norman area known from preliminary geological work already done. It should also be noted that our Norman wells have up to date only been operated continuously for three months during each year and while they have shown no appreciable decline in production during these successive periods of three months, a field of the Fort Norman type gives no assurance that these wells can be operated continuously throughout the year without showing a substantial decline, or that with a larger number of wells and a higher rate of aggregate withdrawals, the behaviour of the pool will be such as to support a continuous production in the amounts required.

(b) Distillate data with regard to Norman crude has already been furnished by us and no doubt have been thoroughly studied by your staff. We should, however, point out that our refinery at Norman is of the low pressure distillation type and with this equipment only 17% of each barrel of crude can be converted into aviation base stock and that it requires 40% of this base stock and 60% of hydrocodimer as well as 4 cc's of lead to produce 100 octane aviation gasoline.

With regard to Article 3 of said memorandum relating to transportation facilities on the Mackenzie River, we are advised that the present facilities are capable of transporting about 5,000 tons during the navigable season. The tonnage which would have to be transported for the drilling and production operations at Norman would be from 1,000 to 1,200 tons and if the plans decided upon contemplate the transportation of approximately one-half of the pipe, pump station equipment, material, etc., for the pipe line, this might add another eight or nine thousand tons to the tonnage which would have to be transported. The boats which have been used on the river between Waterways and the south side of the portage of Fort Smith, as well as the boats used between the north side of the portage and Norman, are built of wood, usually British Columbia fir brought in from British Columbia. The boats have so far been built at Fort Smith, the usual unit consisting of a power boat and a barge, which unit on the average would have a carrying capacity of 250 tons. Provided all material is on the ground, our advice is that it would take from three to five weeks to build each boat.

The feasibility of constructing the pipe line with the necessary pump stations from Norman to Whitehorse over unknown country, a considerable part of which is known to be mountainous and a great deal of which is reported to be muskeg, is a matter which we have not attempted to investigate either with

regard to such feasibility or the expedition with which it might be accomplished, or its year round operation. Apart, however, from considerations regarding the pipe line, the facts which we have outlined with regard to securing the production desired at Norman, lead us to submit for your consideration the feasibility of using cargo planes in lieu of the present plan. As pointed out, a large volume of hydrocodimer or alkylate blending agent will have to be transported to Whitehorse, if that is to be the place of blending. Assuming that the main requirement is 100-octane aviation gasoline, our thought is that this aviation gasoline might be transported by tank car to storage facilities erected at Waterways or at Grand Prairie, or at both points, and thence transported to Whitehorse by cargo planes fitted with tanks suited to such transportation. While it has not been possible in the time at our disposal to obtain accurate information, either from the standpoint of weight or bulk as to the carrying capacity of these cargo planes, it seems reasonable to expect that each plane should be able to carry about 75 barrels of aviation gasoline. If so, the number of such cargo planes necessary for the service would not be very large and could be increased or diminished according to requirements. This plan would seem to eliminate considerable of the uncertainty as to the availability of the product and a large part of the hazard as to expedition in securing the result desired. The plan of transportation by cargo plane might also be applied to petroleum products other than aviation gasoline and in such development at Norman more or less along the lines of your memorandum, as well as by way of expansion of its refinery, might well be considered.

In concluding, let me repeat that we see very great difficulties, both as to feasibility and as to expedition, in the plans proposed. If, however, you decide to proceed as outlined in your memorandum, we are prepared to fully cooperate and ready, at your convenience, to discuss the means and the details of that portion of the plan directly pertaining to us or in which we can assist by way of consultation or technical advice.

Yours very truly,

R. V. LeSUEUR.

RVL/EBS

cc: Brigadier General W. B. Pyron.

Brigadier General Robins.

EXHIBIT No. 1102

WAR DEPARTMENT,

Washington, D. C., 13 November 1943.

Mr. HUGH A. FULTON,
Chief Counsel, Truman Committee,
449 Senate Office Building, Washington, D. C.
 (Attn: Mr. Halley.)

DEAR MR. FULTON: I enclose photostats of the papers shown to the Committee by General Carter on his testimony today on the Canol matter, having omitted, as permitted by Senator Ferguson, one letter which chanced to be in the file, but which did not relate to the Canol matter.

Yours sincerely,

JULIUS H. AMBERG,

Special Assistant to the Secretary of War.

NOVEMBER 9, 1943.

MEMORANDUM FOR THE FILES

Major Sheid (Hq., A. S. F.) saw General Carter, this date, with reference to the papers in this file. This was in connection with a letter from the Truman Committee. General Carter dictated the paragraph shown on the attached paper as a substitute for one of the paragraphs in the Truman Committee letter.

cfm.

Detailed information with respect to the Norman field was sought and obtained from representatives of the Imperial Oil Company, Ltd., whom Mr. Teagle indicated were the best posted individuals on that field. These gentlemen were requested to and did confer with the War Department on April 29, 1942.

Detailed information with respect to the Norman field was sought and obtained from Mr. O. C. Wheeler and Mr. F. B. Bimel of the Imperial Oil Company, Ltd., whom Mr. Teagle indicated were the best posted individuals on that field. These gentlemen were requested to and did confer with the War Department on April 29, 1942.

BOARD OF ECONOMIC WARFARE,
May 12, 1942.

MEMORANDUM

To: Colonel Donald C. McDonald.
From: E. S. Taub.
Subject: Norman Wells.

At the request of Mr. George Reynolds, Chief of the Development Branch of and transportation of oil or gasoline from the Norman Wells in the Canadian the Office of Imports, "BEW," we began preliminary studies on the development Northwest to the supply bases of the American Forces in Alaska.

We find in the course of our investigation that the Army engineers, under General Pyron and General Sturdevant, are actively engaged on this project, and from information given us, we believe that adequate and capable attention is being given to the project.

We feel therefore that there is no necessity for our continuing on this project, and we are advising Mr. Reynolds that the project is being actively carried forward.

We believe that the conference held in our office this morning with representatives of General Sturdevant's staff was most helpful in outlining to the Army engineers, ways and means by which the Industrial Engineering Branch of the "BEW" can be helpful to the Army on specialized engineering problems.

Copy to Gen. A. H. Carter, room 4509, Munitions Bldg.

For information D. C. M. D. Col. F. A., Liaison Officer 14.

WASHINGTON, D. C., May 5, 1942.

General CARTER:

Returning letter of May 2, Imperial Oil Ltd., on Norman oil field:

1. As stated by General Pyron, this field is not at all regular and the present production only indicates probable further production within the vicinity and *not full* assurance. The same can be said about a great many other producing fields.

2. However, in the present situation and urgent future needs, any reasonable *chance* of increased production warrants, in my opinion, the preparatory work, pipe line, etc.

3. I find nothing in the letter that was not known already—even the boat capacity en route. However, the Imperial people we interviewed stated that they had options on only 160 tons of freight for the season. If the Corps of Engineers can *acquire* more, then they need not build or operate boats.

4. We know that they only have a skimming plant at Norman, but with crude of the reported gravity (42) the yield should be increased to at least 60% by cracking, and the whole process will be done at Whitehorse when pipe line is available and *not* at Norman.

5. As we stated at our conference, this is *not* a *commercial venture*, but a *venture* to solve urgent needs, which is an altogether different sort of a venture.

6. If the Chief Engineer reports, after aerial survey, that the pipe line cannot be put down this season, then air transport of the *crude oil* from Norman to Whitehorse should be considered seriously as an alternative, especially if the cracking plant at Whitehorse can be made available first. A skimming plant operation is a waste of valuable material in this situation. If pipe line cannot be made available, then all crude in storage and all produced this season should be transported by air.

J. H. G.

INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM 9859

WAR DEPARTMENT, HEADQUARTERS, SERVICES OF SUPPLY,
Washington, D. C., May 4, 1942.

To: Colonel Graham,
Room 2070.

Requesting action as indicated below:

Action	Explanation
Approval	Filing
Attaching File	Follow-up
Comment	Information
Compliance	Recommendation
Concurrence	Reply, direct
Consideration	Reply, prepared for sig. of
Correction	Report
Discussion w/me	Signature
Distribution	

I am forwarding the attached for your information. You may retain this for your files or return to me, as you wish.

A. H. CARTER,
Brigadier General,
Director, Fiscal Division.

(Name or Initials)

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington, D. C., April 30th.

Captain HARDIN: Gen. Pyron's office called to advise that Mr. O. C. Wheeler and F. B. Bimel are with the Imperial Oil Company, not with the company as stated on the paper you have.

Subject: Development of oil facilities in Alaska.

Time: April 29, 1942, 9:00 A. M., Rm. 4509, Munitions Building.

Attended by:

Brig. Gen. A. H. Carter.
Brig. Gen. St. Clair Streett.
Brig. Gen. Walter B. Pyron.
Colonel James H. Graham.

Mr. O. C. Wheeler.
Mr. Morgan Walker, Col. 6121.
Mr. F. B. Bimel.
Colonel Carl A. Russell.
Lt. Colonel James K. Tully.
Mr. James C. Rettie.

Mr. Ray W. Smith.

Representing:

Fiscal Division, S. O. S.
Operations Division, W. D. G. S.
Resources Division, S. O. S.
Spec. Asst. to Commanding General, S. O. S.
Standard Oil Co. of New Jersey.
Standard Oil Co. of New Jersey.
Standard Oil Co. of New Jersey.
Operations Division, W. D. G. S.
Operations Division, W. D. G. S.
Chairman, Alaskan Regional Office,
National Resources Planning Board.
Board of Economic Warfare.

WASHINGTON, D. C., April 29, 1942.

General CARTER: The attached is as complete an operation as I can forecast in words at this time. When as General Somervell acts upon it, I suggest that you show this copy to General Streett.

J. H. GRAHAM.

WASHINGTON, D. C., April 29, 1942.

Subject: Extensions for fuel supply, Air Corps, in Canada and Alaska.

COMMANDING GENERAL, Services of Supply.

1. As a result of a conference this forenoon in the office of General Carter with General Streett, General Pyron, Mr. Ray W. Smith of the Board of Economic Warfare, and Mr. O. C. Wheeler and Mr. F. B. Bimel of the Standard Oil Company of New Jersey, concerning the possible extension of a crude-oil production and oil-

refining operation now owned and operated by the Company at Norman, on the Mackenzie River, west of the Great Bear Lake, Northwestern Territory, Canada, I recommend that the Chief Engineer, U. S. A., be authorized as follows:

2. To arrange with the Company for the drilling of a minimum of nine additional wells in the vicinity of Norman for added production by September, 1942.

3. To build or to otherwise acquire such shallow draft river freight craft by June 15, 1942, as may be considered adequate to the circumstances, and to operate these between the railroad, at McMurray's Waterways, Alberta, Canada, via the Great Slave Lake and the Mackenzie River to Norman.

4. To survey by air or by ground for a crude-oil pipe line to be built on the most direct and feasible route between Norman and the railroad at Whitehorse, the Yukon, Canada; and to arrange for the construction of a four-inch pipe line on this route (relay pipe if obtainable) with trail connections along the route between proper pumping stations; all with the view and schedule of having this pipe line under operation by September 15th, 1942.

5. To survey the oil-refining operations, adjacent to the West Coast of the United States, to ascertain all available oil refining, cracking plant, gasoline treating equipment and tankage which might be in good operating condition but obsolete because of size or daily capacity (500 to 1,000 barrels per-day units) and to arrange for the dismantling of such equipment to the minimum extent of 3,000 barrels per day of crude oil refining, and to arrange for the transporting and erection of this equipment at Whitehorse, The Yukon, Alaska, and have same in readiness for operation by October 1st, 1942.

6. To instruct all Commanders of Engineering Regiments and Highway Contractors, now operating and to operate in the area south of Norman to the vicinity of Fort Nelson, to render such aid as may be feasible and proper to any oil companies which may be prospecting the area for crude oil during this season and to report any such developments as may take place.

7. To arrange with the Standard Oil Company of New Jersey to store, for the future use of the Air Corps, U. S. Army, all of the gasoline which may be produced by its refinery at Norman during the operating season of 1942.

8. To arrange to report the progress of these operations monthly.

J. H. G.

APRIL 1, 1942.

MEMORANDUM FOR GENERAL BROWNE

We should include in the 1943 estimates provision for the proposed Alaskan Road and, in that connection, I suggest that the terminology be broad enough to permit the construction of a motor road or a railroad, and that, if possible, it be so inclusive as to enable us to provide the necessities for an air line of communication. Perhaps the language could be made broad enough by stating that the money is required for land and air communications between the terminal points. We should also give consideration to the question of maintenance of this line of communication.

A. H. CARTER,
Brigadier General, U. S. Army,
Director, Budget and Financial Administration Division.

WAR DEPARTMENT,
OFFICE OF THE BUDGET OFFICER,
Washington, D. C., April 1, 1942.

To the Chief of Engineers.

Subject: Canadian-Alaskan Military Highway.

1. In response to your letter of March 31, 1942, relative to the above subject, the application to the prosecution of the work upon the Canadian-Alaskan Military Highway of \$50,000,000 pertaining to the appropriation "Engineer Service, Army, 1942-1943" is approved.

2. The inclusion in the revised 1943 Budget of Funds to replace those advanced for this work and for the continued prosecution thereof is receiving consideration.

By authority of the Secretary of war:

A. H. CARTER,
Brigadier General, U. S. Army,
Budget Officer for the War Department.

4/6/42. (Signed by Gen. Carter and dispatched to C. of Engrs. (Col. Gesler)
4/7/42. MGB.

File No. SPBFB 111/Military, 1943. (Engineers)

WAR DEPARTMENT,
OFFICE OF THE BUDGET OFFICER,
Washington, D. C., April 1, 1942.

Memorandum to General Carter.

Subject: Canadian-Alaskan Military Highway.

1. The attached draft embodies the action which appeared to be agreed to at yesterday's conference. It may be you will wish to take the matter up with General Somervell before signing the paper.

2. If you will sign and return to me, I will see that proper notation and action are effected in connection with the Apportionments activity.

F. W. BROWNE,
Brigadier General, U. S. Army.

EXHIBIT No. 1103, introduced on page 9517, is on file with the committee

EXHIBIT No. 1104 appears in full in the text on p. 9526

EXHIBITS Nos. 1105 to 1120, introduced on p. 9532, are on file with the committee

EXHIBITS No. 1121

EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET

WASHINGTON 25, D. C., March 24, 1943.

The Honorable The SECRETARY OF WAR.

MY DEAR MR. SECRETARY: It is desired in connection with the review and processing of estimates for the Military Establishment for the fiscal year 1944 that a field examination be made in connection with the construction projects under way and proposed for Northwestern Canada and Alaska. I have designated Mr. Charles D. Curran of my staff to make this examination.

It is proposed that Mr. Curran arrive at Edmonton, Canada, about April 3 to visit the United States Division Engineer office located in that city. It is desired that such assistance as is practicable be given Mr. Curran to enable him to visit the Alcan Highway, the Northwest Service Command headquarters at Whitehorse, the Whitehorse-Yukon Railroad, port and depot facilities at Skagway, Alaska, and at Prince Rupert, Canada, the air bases at Fairbanks and Anchorage, and such other Army installations as may be desirable.

It is planned that Mr. Curran will be joined at Edmonton by Mr. Robert W. Coghill, a petroleum consultant to this office, who is engaged to make a technical report on the petroleum resources of the region including the Canol project. It is anticipated that Mr. Coghill will find it desirable to visit Whitehorse and possibly Fairbanks and Norman Wells. Mr. Coghill will be in San Francisco the latter part of this week, and it is desired that while there he obtain such detail information in connection with the development of the petroleum resources in Alaska and the Canadian Northwest as can be made available by the Standard Oil Company of California. Likewise it is proposed that Mr. Coghill proceed to Toronto, Canada, to obtain similar information after he leaves the field installations. It would be appreciated therefore if you would authorize the Standard Oil Company of California, San Francisco, California, and The Imperial Oil Company, Toronto, Canada, to make available to Mr. Coghill such detail information in connection with their relationships with the War Department as he may require.

Very truly yours,

HAROLD D. SMITH, *Director.*

EXHIBIT No. 1122

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

Washington 25, D. C., April 9, 1943.

The Honorable the SECRETARY OF WAR.

MY DEAR MR. SECRETARY: Under date of April 1, 1943, you advised me, in reply to my letter of March 24, that necessary instructions had been issued to appropriate agencies in the War Department to furnish Mr. Charles D. Curran of this office, and Mr. Robert W. Coghill, a petroleum consultant to this Bureau, with such assistance as may be practicable, and to afford them opportunity to visit such places as might be necessary in the accomplishment of a field inspection of War Department projects in Northwestern Canada and Alaska. As a result of circumstances arising in this office it was necessary to postpone that trip.

It is now desired that Mr. Curran and Mr. Coghill perform a part of the trip previously contemplated. It is proposed that Messrs. Curran and Coghill arrive at Edmonton, Canada, about April 15 and visit the United States Division Engineer Office there located. It is desired that such assistance as is practicable be given as will enable them to obtain such information as they may desire in connection with the Canol Project and the Alcan Highway Project, and as will permit them to visit such installations in connection with these projects as may be necessary.

Mr. Coghill will proceed to Edmonton by way of San Francisco. It would be appreciated if you would authorize the Standard Oil Company of California, San Francisco, California, and the Imperial Oil Company, Toronto, Canada, to make available to Mr. Coghill such detail information in connection with their relationships with the War Department as he may require.

Very truly yours,

HAROLD D. SMITH,
Director.

EXHIBIT No. 1123

EXECUTIVE OFFICE OF THE PRESIDENT

BUREAU OF THE BUDGET

Washington 25, D. C., June 2, 1943.

The Honorable the SECRETARY OF WAR.

MY DEAR MR. SECRETARY: On April 9, I wrote you requesting that such assistance as was practicable be given Mr. Charles D. Curran, of this office, and Mr. Robert W. Coghill, Petroleum Consultant to the Bureau, to enable them to make an inspection of the Canol project and the Alcan Highway project in the Northwest Division, U. S. Engineer Department. These two men have now returned from their inspection and have submitted reports to me.

I am enclosing for your information one copy of each of their reports. It will be noted that Mr. Coghill's report refers extensively to five volumes of exhibits. These references generally quote sufficient material from the exhibit to obviate the need of these exhibits to understand the report. For this reason and for the further one that only one complete set of exhibits is available, I am not enclosing them. However, they are available in this office in the event it should be desired to consult them.

The Budget estimates for 1943 proposed \$25,000,000 for the completed Canol project; then the 1944 estimates show 1943 obligations amounting to \$65,300,000 and include the additional sum of \$53,780,000 for the project. *The extreme solutions to the problem seem to be, on the one hand, to carry forward the program as planned, and, on the other, to stop the entire project and supply the same quantity of gasoline by seven tanker loads a year moving along the inner water passage from the south to the Skagway pipe line. Perhaps the proper answer lies between the two.*

In view of their interests in these projects as related to their specified spheres of responsibility, I am notifying the Petroleum Administrator for War and the Chairman of War Production Board of this letter.

I would appreciate receiving any comments you may have on these two reports and in particular I would like to be informed as to any change in the scope of the projects discussed therein, as compared to the scope when these two men visited the territory.

Very truly yours,

WAYNE COY, *Assistant Director.*

EXHIBIT 1124

PETROLEUM ADMINISTRATION FOR WAR,

Washington, June 19, 1943.

MY DEAR MR. COY: I have read with so much interest and so much concern your letter of June 2 enclosing a copy of your letter of the same date to the Secretary of War regarding the so-called Canol Project, that I am writing now to give you my views without waiting for the further advice that you mention and without the opportunity of consulting the reports and exhibits to which you refer.

Despite the fact that the President's letter of May 28, 1941, which established the Office of Petroleum Coordinator, and the Executive Order of December 2, 1942, creating the successor organization, the Petroleum Administration for War, required that other agencies give this office antecedent advice upon all matters relating to petroleum, we received no such disclosure from the War Department regarding the Canol Project. The history of this undertaking, so far as it is known to us, provides, I think, an excellent confirmation of the desirability and the necessity for the closest kind of coordination as between Government departments where oil is concerned—a coordination which in this instance has been sadly lacking.

Upon numerous occasions, commencing at the time when the project first came to our attention quite by chance, I pointed this out to the War Department. For example, as recently as December 9 I wrote to Secretary Stimson:

"To the extent that the War Department assumes the right to be on its own so far as petroleum matters are concerned, it operates without the benefit of the assistance which we could provide and it runs the serious risk of disrupting or delaying other oil programs that are of equal if not of greater importance to the successful conduct of the war.

"I would stress with you the specialized and the interrelated character of oil operations. * * * It should be recognized that the scheduling of petroleum supplies and the allocation of the materials that are required cannot be intelligently or efficiently handled on a piecemeal basis. An oil operation anywhere that involves the use of critical materials cannot be held to be the sole concern of the Army. If, without consultation or even an opportunity to adjust to a new situation, pipes and machinery and pumps and casings, etc., are taken away from use that might yield more oil for the Army, it is the war job that is being retarded."

My first information regarding the Canol Project was obtained from a contractor who happened to be passing through the city. This was in May 1942, and I immediately made inquiry of the War Department, expressing surprise that any such development could have been undertaken without the knowledge of this office. I was told in general terms that, to meet the serious problem of providing fuel for air force operations in Alaska, arrangements had been made for additional drilling at Fort Norman and for the construction of a 4-inch pipe line from that point to Whitehorse. I was also informed that obsolete cracking stills from the West Coast were to be utilized for the production of aviation gasoline at Whitehorse.

I wrote to Secretary Stimson on June 3, stressing the unfavorable conditions which would, in our judgment, beset the proposal, and especially the difficulty of procuring the necessary materials and equipment for the aviation gasoline plant. I made the point that a substantial amount of new material would be required for the refinery installation and that it could be made available only after considerable highly specialized process-design development work. As a supplemental source of these essential petroleum supplies, I suggested that consideration be given to tanker transportation from California via the Inland Passage to Skagway,

and thence to protected storage at Whitehorse and other strategic points by way of tank car or product pipe line. In this connection I wrote:

"It would seem to be preferable to build up stocks of products at these strategic points in Alaska and Canada, rather than to depend upon the uninterrupted operation of production, pipe line, and refining facilities under the adverse geographic and climatic conditions that would prevail.

"To make a specific comparison of one phase of this operation, one average-size tanker could in four trips supply as much aviation fuel as could be manufactured in this proposed 3,000-barrel refinery during the year. * * *

"May I suggest to you the desirability of your forces conferring without delay with the technicians of this office, and availing themselves of their counsel, to the end that the most effective and practical method may be adopted to meet the need of the Army in this particular situation."

In his reply of June 10, Under Secretary Patterson indicated that the War Department considered the project to be justified by military necessity and stated, "I am informing the Chief of Engineers that the technicians of your office are available for consultation in matters connected with this project." To the best of my knowledge, my technicians have not yet been called into consultation upon the project.

As time went on, further correspondence and inquiry upon our part revealed to us fragmentary glimpses of the Army's plans. On July 7, Secretary Stimson informed me that further study had developed the desirability of adopting our suggestion for supplementing facilities at Skagway. Subsequently I recommended that, in view of the strategic importance of the Fort Norman production development, a competent petroleum engineer be sent to Fort Norman to observe and report upon the work being done there during the summer. This proposal also met with a favorable response and we arranged for such an investigation to be made, thereafter submitting to the War Department a copy of our engineer's report. In doing so, I pointed out once again our serious doubts as to the operating practicability of the pipe line even if the construction difficulties could be overcome, and I urged that further work on the construction of the proposed line be held in abeyance, with reliance for petroleum supplies being placed upon tanker shipment from California, until a thorough-going analysis could be made of all the facts.

In reply to this, on December 9, Under Secretary Patterson stated that the "pipe line from Norman Wells to Whitehorse is considered entirely practicable by the Army Engineers and all the consultants engaged on the project. The difficulties * * * are admittedly great but can be overcome." Since then I have had no information from the War Department regarding this project which obviously relates to a petroleum supply problem that is of vital concern both to the Oil Controller of Canada and to this office.

We have frequently received requests from the War Production Board for our recommendations on equipment for the Canol Project. For example, only this week we were asked to recommend as to where a molten-salt waste-heat boiler for the Canol Refinery should fit in the production schedule of a certain manufacturing plant which is fully scheduled for the remainder of the year to produce essential equipment for the aviation gasoline, synthetic rubber, and Naval programs. It is apparent that the scheduling of this boiler would delay one of these vital programs. This is but one of many illustrations of the inter-related character of these programs and of the difficulties that are caused by the lack of adequate advance information.

So much for the record. If I correctly interpret your letter of June 2 to the Secretary of War, budget estimates for 1944 for this project total \$119,080,000. This is one-third more than the cost of the 24"-diameter 1,460-mile pipe line which will deliver 300,000 B/D of oil from the Texas fields to the New York-Philadelphia area. It is about one-quarter of the total investment, both private and Government, in all new facilities for the 100 octane aviation gasoline program. And it practically equals the total Government investment in this program. Yet, a best it would produce from 3,000 barrels per day of crude no more than 900 barrels per day of 100 octane gasoline.

Surely, whatever the strategic considerations may be, and they are admittedly unknown to me, the cost of this project in terms of critical materials, labor, and money is excessive in the extreme. To one who is familiar with oil operations, the undertaking assumes a well-nigh fantastic appearance. The result, so far as concerns the delivery of the desired products to the point where

they are required, certainly could be accomplished more practically and for but a fraction of the cost. At this stage I do not know what the solution may be but, as you suggest, the answer will very probably lie somewhere between the extremes that are mentioned in your letter to the Secretary of War. If in this we can be of assistance—and with our experienced organization we think we can be—we stand ready to respond to invitation from you or from the War Department at any time.

Sincerely yours,

HAROLD L. ICKES,
Petroleum Administrator for War.

HON. WAYNE COY,
Assistant Director, Bureau of the Budget.

EXHIBIT No. 1125

WAR DEPARTMENT,
Washington, July 27, 1943.

HON. HAROLD D. SMITH,
Director, Bureau of the Budget,
Washington, D. C.

DEAR MR. SMITH: On 2 June 1943 the Assistant Director of the Bureau of the Budget sent to the War Department a report on the Canol Project which was made by a member of your staff, and a copy of a letter from the Petroleum Administrator of War.

The letters of Mr. Wayne Coy and Mr. Harold Ickes and the comprehensive report by the Petroleum Consultant to the Bureau of the Budget have been studied thoroughly by both the War Department General Staff and by the Army Service Forces. As a result, the entire Canol Project has been reconsidered in the light of the information and recommendations contained in these letters and reports. The conclusion which the War Department has reached is that while we will be pleased to discuss the entire question with representatives of the Bureau of the Budget and of the Petroleum Administrator for War, we feel very strongly that the Canol Project must be completed as rapidly as possible and without further interruptions or delay.

The critical military situation at the beginning of the war did not permit detailed planning or an accurate preliminary estimate of the cost and difficulties involved. The total estimated cost, with the Houdry Process eliminated and with certain other economies and simplifications, will now be around \$88,000,000. The project could not now be suspended without a loss of near \$50,000,000. The estimated expenditure to 1 August 1943 amounts to nearly \$48,000,000. The recoverable materials, if the work was stopped, would amount to some \$1,420,000, which would be offset by a further cost of \$6,454,000 for the demobilization and evacuation of personnel and salvageable material and equipment. The alternatives now present are: the abandonment of the project, at the cost of nearly \$50,000,000 and with no tangible results; or, the completion of the project, which calls for the additional expenditure of \$38,000,000. The decision, however, cannot be made solely on a financial or economic basis.

Military necessity requires that the Canol Project be completed as rapidly as possible. The world-wide shortage of tankers and petroleum products is such that our offensive air operations may be limited by our capacity to produce and distribute petroleum products where needed and at the time required. The success of the Canol Project may well be the determining factor which will control (balance of sentence deleted by direction of the War Department in view of its relation to secret military strategy). Because of necessity to accomplish now the logistical arrangements for the support of future operations, the Canol Project must be completed as rapidly as possible and without further interruption or delay.

If, after consideration of this letter, you desire a further discussion of the Canol Project, I will be pleased to designate representatives of the War Department to meet with representatives of the Bureau of the Budget and of the Petroleum Administration for War.

Sincerely yours,

ROBERT P. PATTERSON,
Acting Secretary of War.

EXHIBIT No. 1126

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., August 10, 1943.

The Honorable THE SECRETARY OF WAR

MY DEAR MR. SECRETARY: I have received your letter of July 27, 1943, in reference to the Canol Project and the reports sent you on June 2, which had been made to this office as a result of its field investigation of the project. As stated in my letter of June 2, in view of their interests in the projects as related to their specified spheres of responsibility, I notified the Petroleum Administrator for War and the Chairman of the War Production Board that the reports had been referred to you. I also informed those two officials that I would take the subject up with them further upon receipt of reply from the War Department and, therefore, I am now furnishing them with copies of your letter of July 27, with such deletion as has been recommended by the General Staff through the Budget Officer for the War Department, and copies of the field reports prepared for this office.

Very truly yours,

HAROLD D. SMITH,
Director.

EXHIBIT No. 1127

PETROLEUM ADMINISTRATION FOR WAR,
Washington 25, September 20, 1943.

Hon. HAROLD D. SMITH,
Director, Bureau of the Budget.

MY DEAR MR. SMITH: Referring to Mr. Davies' conversation of September 17 with Mr. Dodd of the Bureau and to your letter of August 10 transmitting certain reports on the Canol project, I write to suggest that a meeting between representatives of the Bureau of the Budget, the War Department, and the Petroleum Administration for War be called in keeping with Under Secretary Patterson's letter of July 27 to you. If this be agreeable to you and you will let me know the date, I shall be pleased to have one or more members from this office attend and contribute such facts and views as we are prepared to advance.

From such reports as I have seen upon the Canol project I certainly cannot subscribe to any proposal that the project go forward to completion as originally planned, regardless of the fact that it is well advanced at the present time. I think that there must be a more practical course, no matter how mistaken the original move may have been.

In connection with the material transmitted with your letter of August 10, I call attention to the fact that Mr. Coghill's report of May 15 indicates that this office (then the Office of Petroleum Coordinator) was consulted early in 1942. This is in error. We were never approached, but learned of the project quite accidentally through a chance remark made by the contractor who was then engaged in building the line and who happened to be discussing other matters with Mr. Davies.

Sincerely yours,

HAROLD L. ICKES,
Petroleum Administrator for War.

EXHIBIT No. 1128

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, October 13, 1943.

Hon. HAROLD L. ICKES,
Petroleum Administrator for War,
Washington 25, D. C.

MY DEAR MR. ADMINISTRATOR: On my return to Washington I took up the question of a meeting between representatives of the Bureau of the Budget, the War Department, and the Petroleum Administration for War to discuss the

Canol project. I understand that Justice Byrnes has directed that a study be made of this project. This is being carried on by the joint army and navy board on procurement which he has recently caused to be set up. He has suggested that we defer any further action until they have had a chance to report. The membership of this board has not had a part in any determinations concerning the Canol project and Mr. Byrnes feels their report will be an objective one.

I can see no point in going ahead with the meeting as long as this study is underway, since the whole situation may have to be reviewed in the light of the report that the joint board may make.

Very truly yours,

WAYNE COY,
Assistant Director.

EXHIBIT No. 1129

REPORT OF INSPECTION, NORTHWEST DIVISION, UNITED STATES ENGINEER
DEPARTMENT, APRIL 1943

MAY 14, 1943.

Honorable HAROLD D. SMITH,
Director, Bureau of the Budget,
Executive Office of the President, Washington, D. C.

DEAR MR. SMITH: In accordance with instructions, I visited Edmonton and Whitehorse, Canada, and projects in the vicinity of each under the jurisdiction of the Northwest Division U. S. Engineer Department, during the period April 13-24, 1943. I was accompanied on this inspection by Mr. R. W. Coghill, Petroleum Consultant to the Bureau, and Lt. Col. W. A. Hunter of the Budget Office of the War Department, who was assigned as liaison officer.

Attached hereto is a summary report of observations and conclusions made as a result of that inspection.

Respectfully submitted.

CHARLES D. CURRAN,
Principal Budget Examiner.

ALCAN HIGHWAY PROJECT

THE AIR ROUTE

It has variously been reported in the United States that the Alcan Highway is the ideal location for the scenic route for tourists through Western Canada to Alaska, and that the Alcan Highway is merely a minimum military route that will never serve any purpose other than supply the existing airfields. Dr. Stefansson has gone further and stated that if the present war lasts four years or more, the highway and the airfields will be abandoned.

The airfields served by the highway are in place and the Dominion of Canada, Department of Transportation, is constructing permanent installations at most of them. The Air Transport Command proposes installations at these fields. Flying from Watson Lake to Fairbanks is reported to be difficult. The Canadian-Pacific Air Lines flies the route to Whitehorse daily, and has scheduled trips to Dawson as well. The air route along the Mackenzie River was closed due to muddy fields during the time I was in the Northwest Division. It may well be that the Mackenzie River route would have been a preferable air route and both the topographic map and the weather records indicate that it should be easier to fly this line. However, the existing line is available and is serviceable. Apparently crack-ups are not infrequent but it is problematical to state that military flying under all weather conditions would be any more satisfactory over any other route. It is noted that some facilities for flying the Mackenzie Valley route are included as a part of the Canol project. Likewise the C. P. A. flies this route regularly. I understand that in general when one route has bad weather the other is open. It may be desirable, if the war lasts long enough, to place both routes in operation. The only adverse opinions to flying I heard were (1) pilots do not like to fly the route Whitehorse to Norman, and (2) pilots like to avoid Norman for fear of being shut in by weather. This latter is contrary to the statistical information of the W. P. B. I did note a general inclination on

the part of all concerned to consider that all communication lines should be kept south of the Arctic Circle.

In any event the air route via the Alcan line is now established. I would not recommend its abandonment at this time regardless of its comparative merits with any other route not yet completely opened.

SCENIC VALUE

It may be that this route is not the most scenic route which could have been found from the United States to Alaska. It is true that the reach from Dawson Creek to Fort Nelson is across the prairie country. The entrance to the highway between Dawson Creek and the United States is east of the Rockies and in the prairie country. However, from Fort Nelson north the road crosses the Rocky Mountains and the Coastal range. This portion of the road is surely as scenic as anyone could desire.

I believe that when General Robins stated the highway was merely a military road to service the airfields he belittled its quality somewhat. Portions I traveled seemed to me to be good grade gravel highways, better than many I have traveled in the southern United States. They will probably be dusty during the dry months, but this problem can be overcome ultimately. The road is compact and cars can travel at 55 miles an hour without difficulty. Viewing the road from the air I saw several bad spots, both as to alignment and as to drainage and foundation, but these places will be improved under the current program. I did not identify any portions as being impassable because of muskeg.

EQUIPMENT

Considerable has been rumored about the great amount of equipment dead-lined along the highway. I saw considerable dead-line equipment both at Edmonton and at Whitehorse but I saw none along the highway. General O'Connor stated that at one time 1,600 Army trucks were dead-lined along the highway. At present these are all off the highway and 600 are back in use. He estimates that ultimately all but 100 will be back in use and this latter number must be scrapped. Mr. Bright of the P. R. A. stated that there was a heavy equipment break-down, first because of heavy usage; secondly, because of lack of spares; thirdly, because of the low temperature; fourth, because wrong lubricants were used, and fifth, because some Diesel fuel was no good. Mr. Adams, the superintendent of the plant at Whitehorse, said that the maximum amount dead-lined was about 70% of the total equipment. He was, however, unable to give me a figure as to what the total had been. He furnished data on the Whitehorse Division showing that of 1,203 pieces of equipment now on hand approximately 10 percent would be scrapped. It appears in general that during the cold months when the Army was pushing the pilot road through, a considerable amount of equipment broke down. Then because no spares were available, the equipment had to left along the road for a while. When the thermometer fell below minus 60, and the equipment along the road was locked into ice and snow, it became impossible to move the equipment until the thaw; and it was useless to move it until spares were available.

At Edmonton I saw approximately 100 vehicles which had been transferred to the P. R. A. from W. P. A. and C. C. C. Most of these looked too light for much use in rugged road building. One or two looked to be the wrong type of equipment to send on that particular job for any reason; that is, a light W. P. A. traveling library truck, for example. The Public Roads people generally denied that they were being sent useless equipment. Mr. Stoddard, Division Engineer at Whitehorse, and Mr. Adams, the superintendent of plant there, both stated that the C. C. C. equipment they had received was a life-saver to them in the Alaska section. Mr. Adams admitted, however, that a lot of vehicles transferred from the W. P. A. in Maryland had arrived at the Dawson Creek railhead in exactly the condition they were taken off the Maryland job. In other words, they were not reconditioned and were not serviceable. They had not been moved from the railhead. Personnel of the Corps of Engineers were less reluctant in their criticism of the type of equipment transferred to the P. R. A.

Contracts have been let for the rehabilitation of equipment.

I conclude that the deadline situation was not as serious as a glance during the freeze period without investigation would indicate. There will probably always be a deadline problem during winter months.

I also conclude that probably an unnecessary amount of C. C. C. and W. P. A. equipment was set north without being put in working condition and without any sound prior thought as to whether the equipment was suitable.

CAPACITY

The capacity of the road, according to General O'Connor, will depend upon the equipment available. However, he sees no reason why it should not be able to handle 200 thousand tons per month. His present plans, as I understand them, call for installation of two quartermaster truck regiments along the road, which, on the 5-ton average load in a 10-ton vehicle, will be able to carry 6,000 tons per month pay load from Dawson Creek to Fairbanks after the pipe lines to Watson Lake and Northway are completed. When the drivers are sufficiently skilled to carry 10 tons average load in their trucks the quantity transported from Dawson Creek to Fairbanks will be increased to 18,000 tons per month.

This estimate assumes a military organization, including all auxiliary troops, of 14,000 men of which 4,800 would be truck drivers. It calls for 1,200 trucks. Ten thousand tons per month of cargo would be needed to supply the men. An additional 6,000 tons per month of fuel would be necessary for the vehicles; however, it is stated that at least 4,000 tons per month of this will be supplied by pipe line. This total maintenance load would require, on the 5-ton average load basis, 2,400 truck loads a month. Figuring the average trip from Dawson Creek to Fairbanks and return as two weeks, the average trip to men along the road would be one week and 600 trucks, or one-half of the total would be necessary merely to supply the organization.

When the cargo is built up to 10 tons per truck the nonpay load would be cut down to the capacity of 300 trucks thus leaving 900 trucks to make two trips per month between Dawson Creek and Fairbanks carrying 10 tons each trip as a pay load.

When the Haines cut-off is completed General O'Connor estimates that the two truck regiments could move about 90,000 tons per month from Haines to Fairbanks since the distance is only about $\frac{1}{2}$ ths of the distance from Dawson Creek to Fairbanks.

CANOL PROJECT

DEFINITIONS

The term "The Canol Project" refers to all the projects of the United States Army for the development and distribution of oil in Northwestern Canada. The principal of these are as follows:

Crude oil pipe line Norman Wells to Whitehorse 550 miles, capable of carrying 3,000 barrels per day.

Refinery at Whitehorse.

Development of Norman Wells field and wildcatting in the Mackenzie Valley area.

Distribution pipe lines:

Skagway to Whitehorse, 110 miles.

Carcross to Watson Lake, 275 miles.

Whitehorse to Fairbanks, 500 miles.

Fairbanks to Tanana, 150 miles.

Storage facilities for 1,800,000 barrels of petroleum products at Prince Rupert, Skagway, and points along the Alcan Highway.

Winter road Grimshaw to Norman, 1,000 miles.

Development and operation of river fleet.

Construction of fourteen flight strips.

There are actually three sets of projects in this set-up. The first includes the original conception of the project, that is, development of petroleum resources and the construction of a pipe line carrying crude oil from the Norman area to Whitehorse where it would be refined and made available for use along the Alcan Highway and the parallel air route; secondly, the system for distributing gasoline to various points on the Alcan Highway from the docks at Skagway and the refinery at Whitehorse; thirdly, the transportation features growing out of the first project incident to its construction.

DISTRIBUTION SYSTEM

There seems to be no doubt as to the necessity and soundness of constructing pipe lines from Skagway to Whitehorse, thence south to Watson Lake and north to Tanana, along the highway, for distributing aviation and motor-vehicle gasoline. Such a system naturally requires a certain amount of storage facilities. Considering the transportation difficulties involved, there seems no doubt but that the pipe-line system is the soundest answer to the supply problem. The use of the railroad from Skagway to Whitehorse for this purpose restricts its capacity for other goods. The use of the Alcan Highway for transport of motor fuels by truck greatly restricts the pay load that could be hauled over this highway. It may be contended that the storage involved, 1,800,000 barrels, is excessive. However, when we consider that the project is built as a war project, then excess storage does not seem out of place.

BASIC PROJECT

The basic project proposes a pipe line from Norman which would have a capacity of 3,000 barrels of crude oil per day. The question then occurs as to why wild-cattling should be carried on with a view to developing a supply of 15,000-20,000 barrels per day or any supply greater than the 3,000 barrels the pipe line can carry.

Questions have been raised as to the location of the refinery and as to the extent of its development. Without going into the basic data included in Mr. Coghill's report, my conclusions on the project are as given in the following paragraphs.

The Army was not seriously interested in a land approach to Alaska until after the attack on Pearl Harbor. After that surprise attack we knew that we had lost complete control of the Pacific for the time being, and we did not know exactly what would take place next. In the general rush following this surprise, the Alcan Highway project was approved and started. At the same time there arose the question of supplying the highway and the airfields along it with gasoline. If we had lost control of the Pacific, and submarines were at our shores, what assurance would we have that we could supply either the highway or Alaska by tanker? With the heavy demand on tank cars within the United States, what assurance was there that we could have an adequate tank-car supply to permit complete reliance on United States sources of motor fuels? We had no such assurance, and realizing that certain petroleum resources were available in Canada it was only logical that a move be made to develop them for use in the event of their need. The next step would be a determination of location of the refinery. The refinery purchased at Corpus Christi or any other refinery would have to be transported to the site. It was therefore necessary to pick a site to which the refinery could be rather readily carried, and from which the products could be moved to the point of use. A refinery could be taken to Fairbanks but this would involve shipment over the open sea and transshipment over the railroad in Alaska. As we were not certain of holding the open sea, such a plan would be somewhat weak. Likewise while we were holding the open sea it is probable that the railroad from Seward to Fairbanks would be taxed to capacity with more urgent materials of war. The location of Fairbanks would have been desirable in that a pipe line could have been built from Norman a little longer than, but at lower elevations than, that finally decided upon. Fairbanks also is more favorably located with respect to oil resources of Alaska.

The refinery could be moved to Skagway, thence by rail to Whitehorse. It could be constructed at Skagway or at Whitehorse. It might be loaded on river boat and moved down Lewes and Yukon Rivers and constructed at Mayo, Dawson, or Circle. Its location at either Mayo or Dawson would have given a shorter pipe line from Norman through a lower pass. Its location at Circle would have had practically the same advantages as its location at Fairbanks. However, moving the refinery to any one of these three points would require its shipment over the river system which is open only four months a year, and which is not equipped to take such a load. Further, its location at any one of those three cities does not have the advantage of being on the Alcan Highway. Finally, the refinery might have been built at Norman, which would have been a desirable point. However, the decision was made to build the refinery at Whitehorse, probably because this was the most accessible of the points under consideration.

Further developments led to the plan of producing from the crude oil the maximum amount possible of hundred-octane gasoline. This scheme would require the most extensive type of refinery at Whitehorse and would produce

only one product of any particular value in the vicinity, that is, hundred-octane gasoline.

CURTAILMENT CONSIDERED

Regardless of its merits originally, the project has not lent itself to early completion because of the transportation difficulties. The strategic situation has changed since the plan was conceived. The question then arises as to what, if anything, should be done to curtail the project now.

First, there seems to be no need to consider any curtailment of the storage and distributing system. The projects to be considered as open to modification are the refinery project, the Norman-Whitehorse pipe line, and the wildcatting activity. The refinery proposed would be unable to turn out all the motor fuel of any type needed in the area. The highest degree of refining would turn out the maximum hundred-octane gasoline but would turn out a minimum quantity of needed material from the resources available. A lesser refining project would turn out good motor gasoline and a high-octane gasoline satisfactory for every aviation use except combat. It seems therefore that the project should be curtailed to hold the refinery to this latter size. As I understand it, that would consist of the refinery obtained from Corpus Christi and would eliminate the Houdry-process equipment.

A further question, in view of the small quantity of gasoline that could be produced by the refinery with the crude oil that would be supplied through the pipe line, is whether the refinery and pipe line should be abandoned entirely and only additional storage developed, and this storage supplied by a few additional tankers per year. It seems to me that this proposal would be proper, except that the element of chance and war is involved. We have not yet won the war, nor have we as yet eliminated all danger from the Pacific. It appears possible that one of the most critical items of this war will be petroleum products. If this is so, then it seems that we should do our utmost to develop petroleum products wherever our theaters of activity are. We do not have today any excess number of tankers, therefore the more we can release tankers from some areas the more we can use them in the more critical areas. This question, however, is based primarily on military strategy and our supply of ships. If we are assured that tankers can be spared for supplying this Alcan line, and if we can be assured that any gasoline they would carry to this area would not be needed elsewhere, it would appear that there would be no reason why the project should not be stopped and the materials proposed to be used therein used elsewhere. It should be noted, however, that any serious change in program like this would mean a delay of at least one working season before a substitute construction project could be sufficiently developed.

CONCLUSIONS

It is estimated that 3,000 barrels of Norman Crude could provide as a maximum 1,505 barrels of 100-octane gasoline. In a year this would amount to approximately 550,000 barrels. The maximum gasoline production (80-octane and above) is estimated at 2,410 barrels per day or 879,650 barrels per year. Since typical tankers carry between 80,000 and 100,000 barrels, it appears that seven tanker loads would supply an amount equal to the maximum amount of 100-octane gasoline which could be produced in a year and nine to eleven tanker loads would supply an amount equal to all the gasoline which could be produced annually at the refinery.

In view of the general situation it appears proper at this time to present the whole question to proper top representatives of the Army with the suggestion that they reevaluate the situation with a view to eliminating both the refinery and the crude pipe line. I believe that as a minimum the Houdry process facilities of the refinery should be eliminated.

It seems to me to be likewise a question of strategy as to how much wildcatting should be done. I believe the area of this activity should be restricted in a manner much as the present Division Engineer is holding it down, i. e., within 50 miles of Norman Wells. However, unless there is a likelihood that we will have a major push to Asia through Alaska and will need oil resources in that vicinity developed to a high extent in order to eliminate unnecessary transportation, I can see no need for the project. If we do not contemplate needing the oil and developing it, then I believe we should not explore for it.

SUMMARY OF FINDINGS

1. TRANSPORTATION

The major problem in the area is one of transportation.

The fact that the parts of the network fall under various controls—O. D. T., A. T. S., A. T. C., N. W. S. C., N. W. Division, and A. D. G.—tends to make difficult any planning by a using agency.

The Northwest Division, U. S. E. D., was not as fully apprised as it should have been of capacities of the various components of the network. Likewise it had no check on the claim that contractors' schedules were based on transportation capacities.

The development of the Mackenzie River route by the United States seems to have been excessive for the prospective traffic.

2. ALCAN PROJECT

The route selected is satisfactory for the purpose intended. There is no reason, except cost of maintenance, why it cannot serve as a highway for nonmilitary usage after the war.

The present plan to limit width and alignment to Army specifications is sound.

Statements in reference to equipment have been exaggerated. A large quantity was out of operation during the winter, but only a reasonable portion of this has been permanently put out of service. Some unserviceable W. P. A. and C. C. C. equipment has been sent to the area, but, even though no unnecessary shipment should be condoned, it appears that distance has magnified the extent of this error.

The capacity of the road is limited by equipment. While General O'Connor claims it can handle 200,000 tons per month of through cargo, such a capacity would call for 10,000 trucks over and above those needed for self-supply and exclusive of spares. Use of the highway as a principal supply line to Alaska would be required only if we lost the Gulf of Alaska. It is intended to serve only as an emergency supply line to Alaska. Design criteria contemplates a maximum pay load of 90,000 tons per month.

Since the agreement between this government and Canada provides for construction of the final type road by the Public Roads Administration, that organization should be kept on the job if possible. However, if, within the next few months, the Public Roads Administration does not push the job to meet the scheduled completion date, abandon its business-as-usual attitude, and serve properly as an agent of the Military Establishment, it should be removed from the job and the work should be turned over to the Army Engineer organization in toto.

3. CANOL PROJECT

The concept of the job has greatly exceeded the original intent. Appurtenances to construction exceeded wartime needs.

In any event, the Houdry process features should be eliminated from the proposed refinery.

Unless the War Department anticipates that we will need to develop resources approximately 15,000–20,000 barrels of crude oil per day in this area for the current war, the wildcatting project should be suspended. If this need is anticipated, consideration should be given to the erection of the refinery at Fairbanks, nearer the Naval Reserves, before the refinery is built at Whitehorse and before any appreciable amount of the crude oil line is permanently in place.

If we can be assured that tankers and fuel can be brought to Skagway as needed without detriment to the war in other theaters or in this theater, the crude pipe line and refinery projects should be stopped.

The pipe lines to service the Alcan route should be completed.

4. POLICIES

The entire program for the Canadian Northwest should be reviewed by the War Department in view of the current strategic situation.

Memorandum of March 31, 1943, to Chief of Engineers from the Director, Requirements Division, A. S. F., calls for a review going part way in this direction. That memorandum establishes priorities for fourteen projects, calls for

the elimination or deferment of such as are no longer required, the early completion of the first five, the early completion of the sixth without interference with the first five, and the retarding of the remaining eight. Should war projects be carried forward in a "retarder" status?

If the projects are necessary for the war they should be prosecuted vigorously to the stage of completion and development necessary for the war. Beyond this no development should be made at this time.

If the projects are not necessary to the war their construction should be immediately suspended.

Whether or not these projects are necessary to the war is entirely a question of logistics and strategy which should be determined by the general staff.

EXHIBIT No. 1130, introduced on p. 9563, is on file with the committee

EXHIBIT No. 1131, introduced on p. 9563, is on file with the committee

EXHIBIT No. 1132

[Copy]

DECEMBER 16, 1942.

The Under Secretary of War,
The Under Secretary of the Navy,
The Chairman, United States Maritime Commission,
The Program Vice Chairman, War Production Board.

GENTLEMEN: The outcome of the meeting held on December 1st, at which was discussed the effort made by the Services in cut-back of facilities in response to Mr. Nelson's letter of October 20th was such that I believe a report is due you from me on the outcome of subsequent discussions.

The report of the various Army services had been received by me only an hour before the meeting, and I was consequently able to comment upon it only in the most general terms.

Under Secretary Patterson's letter of November 13th, in response to Mr. Nelson's letter of October 20th to the Secretary of War, had called for this report and directed that "the search for nonessential projects shall include all military projects, as well as industrial projects, whether for equipment only or for construction." Briefly, the response of the Army services was as follows:

The Army Air Force deemed all construction essential, except certain C. A. A. flying fields. Twenty-six of these were recommended for cancellation and thirteen for deferment.

The Corps of Engineers reported no curtailment possible, as the entire program was essential to the war effort.

The Signal Corps reported no curtailment possible, since all projects were essential to the war effort.

The Surgeon General reported that no projects could be arrested or abandoned without serious injury to the war effort.

The Transportation Corps reported that no curtailment was possible, but that a number of additional facilities that had been proposed would be abandoned in keeping with the spirit of Mr. Nelson's Directive.

The Chemical Warfare Service reported all of their projects essential.

The Ordnance Department reported that, by reason of the review of the Army supply program and general cut-back in the war effort, certain projects could be suspended even though they were, for the most part, in an advanced state of completion.

Since the date of our meeting these projects have been totalled up. The outcome is that work has been suspended on projects of which the original total cost is estimated at approximately 450 million dollars but which, on the average, were 64% complete. It is estimated that incompleted work on these projects totalled 165 million dollars. It is pointed out that some of these projects would be suitable for facilities for the Army Air Force or the War Production Board for uses other than those for which they were originally intended, and this is turning out to be the case. For example, the Continental Roll & Steel Foundry ex-

pansion (Plancor 338) is now recommended to the D. P. C. for completion for the purpose of making castings for the aluminum program; and it is likely that the General Steel Casting plant at Madison (Plancor 270) may be completed for similar purposes.

As respects the subject of command construction within the Army, the tentative decision at the meeting was that command construction on the North American continent ought to be submitted to the Facility Review Committee by the Army, as was already the custom of the Navy, but that outside of the North American continent there should be no review of command construction in either service.

The writer has held a series of conferences with General W. H. Harrison, Director of Procurement, and Colonel Albert Pierson as respects the means or method of making such submission on the part of the Army. These officers submitted Section 5 of the Army Supply Program, dated October 31st. Some details of the proposed work contemplated on that date include:

Air Force facilities	\$596,000,000
Ground Troops	384,000,000
Storage and Shipping facilities	83,000,000
Industrial Plants	167,000,000
Fortifications	30,000,000
Passive Protection (camouflage)	47,000,000

As a result of these discussions, it is apparent to me that little useful purpose would be served by submitting this program project by project as of the period when actual construction is to commence, and it was therefore agreed with General Harrison that any review of the program by the War Production Board should be instituted as a general review of the program as a whole. General Harrison, in his final letter on the subject, announces that "we stand ready, of course, to review with you at any time our procedures, practices, and standards, and to make available Section 5 of the Army Supply Program which contains much of the programmed command construction." I am currently discussing with Mr. Eberstadt the question and means of making such a review.

You will recall that construction which agitated me most at the time of our meeting was construction in Alaska, which I understood was likely to include a railroad all or part of the way from Edmonton to Teller. We have since been advised by General Somervell that the project of building this railroad, and even the part of it from Fairbanks to Teller has been abandoned.

A pipe line has been built from Skagway to Whitehorse, and a pipe line is in course of construction from the small oil field at Norman Wells to Whitehorse. Orders have been given to construct and operate a pipe line with a minimum capacity of 3,000 barrels per day of petroleum products from Whitehorse to Tanana (that is the junction of the Tanana and Yukon), with necessary pumping stations, terminal tankage, communication system, and other appurtenances for the distribution of petroleum between these points. Orders have been given to construct and operate a pipe line from Carcross to Watson Lake in British Columbia. Orders have been given to move and set up a refinery, formerly situated at Corpus Christi, at Whitehorse with a minimum through-put of 5,000 barrels of crude per day and with cat cracker and other facilities to produce 100-octane gasoline, together with facilities for storage of crude oil and petroleum products. Plans are also laid to prospect for additional oil fields further down the Mackenzie River, and to study and submit plans for distribution of petroleum products to Anchorage, Nome, Teller, Kuskookwin River Basin and the Aleutian Islands, with indicated surveys for pipe-line routes from other points on the MacKenzie River to Fairbanks. My understanding is that the Alcan Highway is also to be pushed and, if the present dirt road is found unusable when not frozen, that it is to be used as a pioneer or access road for a paved highway, which it is hoped to route so that it will be usable.

The general impression left with me by General Harrison is that this entire Alaskan development rests on such "strategic reasons" that it is not susceptible to review by the War Production Board, or at least that such review would be likely to lead to no modification or cancellation of any part of the program. That is where the matter stands at the present time. There is manifestly no advantage in a review of the essentiality of these projects or the feasibility of their use when completed, if the discussion is to be purely academic. I would appreciate your views in respect to this matter.

I believe it should be considered as settled that review by W. P. B. of Army or Navy command construction within the North American continent should be on a program basis without submission of individual projects to the Facilities Board or Committee.

Respectfully,

FRED SEARLS, Jr.

FS/imd/ho

CC: Admiral B. Moreell,
General W. H. Harrison,
Colonel Gordan E. Textor,
Captain W. H. Smith.

EXHIBIT No. 1133

JANUARY 3, 1943.

The Under Secretary of War,
The Under Secretary of the Navy,
The Chairman, United States Maritime Commission,
The Program Vice Chairman, War Production Board.

GENTLEMEN: In response to my letter of December 16, having to do with the review of facilities and construction of the Army, the Under Secretary of War answered on December 19th, as per appended copy. I have delayed response to his letter in order to make further inquiry and elicit further opinions from other experienced Alaskan operators as to the feasibility of the Alaskan program of the Services of Supply, including the Canol Project, the Alcan Highway, and the general question of the movement of supplies overland from Canada to Seward or Teller. Such inquiries have, of course, been of a guarded nature but have served to confirm my own opinion that the entire program will subtract from, rather than add to, the war effort.

Judge Patterson's letter, paragraph 1, confirms the statement of General Harrison that the Alaskan developments under construction have been undertaken basically for "strategic reasons." This infers that reliance must be placed on the facilities being projected, under certain possible contingencies. If, as a matter of fact, physical conditions are such that reliance cannot be placed on the facilities, then the "strategic reasons" are unsound, and it follows that experienced civilian opinion and comment are entitled to be heard—even though persons making the comment have not been acquainted with the details of the military thought, and planning for utilization of the facilities. The more urgent the reasons for use of such facilities, the more desirable is it to know in advance of their creation, whether they will, in fact, permit of the use intended after they have been created. If, in fact, the expenditure of materials, equipment, and manpower that are necessarily included in this program which will cost in excess of \$200,000,000, will lead to the establishment of a line of communication which will be unusable, then it does not matter whether the intention is to provide an emergency route to Asia or to the Alaskan Peninsula, and it does become a matter of concern to other agencies competing for the materials and manpower involved, as to whether the program is feasible within reasonable conceptions of the duration of the war.

I believe it to be true that no portion of the Alaskan project, including the Canol project, has ever been submitted to the Requirements Committee or to any other agency within the War Production Board, or scrutinized by other agencies represented on the Requirements Committee.

It can, I think, be admitted that there is no military urgency for the supply and maintenance of large forces in the interior of Alaska, and that with the exception of a few thousand men on duty at airfields or in connection with them, the employment of military personnel in the interior of Alaska has been, and is, chiefly concerned with the establishment of the facilities discussed; so that as far as the interior of Alaska goes, the facilities are only of need for the maintenance of the men, for the construction of the facilities, for the maintenance of men, etc. It may be safely assumed, therefore, that the real purpose of this program must be to establish an overland route either to ports on the Gulf of Alaska or to ports on the Bering Sea.

I am advised that Brigadier General Dillon has in his possession reports showing that for the shipment overland from Edmonton to Seward of 10,000 tons of

freight a day, there would be required 50,000 trucks, 150,000 men, 4,000 railroad cars, 100 locomotives for the Alaskan railway, large additional port installations at Seward and/or Anchorage, nearly complete rebuilding of the Alaskan railway, the opening of additional coal mines to supply the railroad, large expenditures for war storage, and, last but not least, the consumption of 2,400,000 gallons of gasoline per day. Such figures would, of course, assume that it is feasible to operate large numbers of trucks over a highway that can be constructed on the Alcan route to Fairbanks within the next couple of years.

It is the writer's belief, backed by correspondence and discussion with those more experienced in Alaska than he is, that it would be physically impossible to handle even half that tonnage over any such road within the next two years. If the attempt were made to complete and to use the road to Teller, the consumption of trucks, gasoline, and manpower would be about twice as great, and it is believed that the road could not be operated to Teller in the winter because of the extremely bad climate and drifting snow, and could not be operated in the summer for the same reason that the rest of the road cannot be operated in the summer—because of the deep thaw that follows road or ditch construction in certain parts of this deeply frozen terrain. It is not feasible to move supplies from Teller to Siberia over the type of ice floes that exist in the Bering Strait from October till June, and it is not feasible to utilize Teller or Nome as export ports in excess of five months of the year. The movement of petroleum or other commodities from the mouth of the Mackenzie past Point Barrow is an extremely hazardous undertaking, which, at best, could be considered as feasible during a single month of the year.

The conception that there would be a saving of ships by export of supplies to the Alaskan Peninsula, the Aleutian Islands or Asia from Seward, rather than Seattle, is not sound. It has been calculated that on the basis of 10,000 tons of freight per day, discussed above, there would be a saving of eight ships in the movement of freight from Seward to Petropavlovsk as compared with the movement of the same freight from Seattle assuming (which is not true) that loading facilities at the two export ports were similar. Even if eight ships were saved, many more than eight ships would be required to bring additional freight necessary for the maintenance in Alaska of the huge number of personnel required for such a movement, from Edmonton or Prince George to Seward.

It is not the purpose of this memorandum to discuss the merits of the projected oil-field developments ordered by General Somervell's directive of November 16. There is considerable room for doubt that any large fields will be found, but it is certain that even if they are found, there will be required such large additional expenditures of equipment and manpower to bring them in and make oil available from this remote region, that their development ought not to be considered as a military measure, at least during the year 1943.

It is urgently recommended that this entire program be submitted to the Requirements Committee of the War Production Board. It is not a secret program for it has been subject to comment in various published articles, and will receive additional publicity, not all of which will be as favorable as that which has so far appeared. It is pretty certain to be investigated by the Congress. If it is a failure, as is freely predicted in this letter, the public criticism will attach not only to the Army but to the War Production Board, which has never passed on the project.

If the Army has sound reasons for defending the program, there should be no reluctance to presenting it to the Requirements Committee which can, if necessary, hold a secret session for the purpose.

If this is not done, it is the writer's opinion that a record is left that the War Production Board stopped hundreds of useful, though not essential, civilian projects to save material, only to have it used for a huge and useless program in Alaska, of which it has never had official cognizance, and which will never serve a useful purpose.

Respectfully,

FRED SEARLS, JR.

EXHIBIT No. 1134

WAR DEPARTMENT,
Washington, D. C., December 19, 1942.

Mr. FRED SEARLS, Jr.,
War Production Board, Washington, D. C.

DEAR MR. SEARLS: The following information is in reference to the Alaskan developments referred to in your letter of December 16th.

1. Construction of the Canadian-Alaskan Highway and the Canadian-Alaskan pipe line was undertaken basically for strategic reasons.

2. A need for overland means of transportation for the movement of vital supplies from the Continental limits of the United States to our garrison in Alaska is apparent for two reasons:

a. To supplement water transportation facilities with the view of relieving the burden of supply solely by water with the ultimate aim of releasing as much shipping as possible for use in other theaters equally important in the prosecution of the war.

b. To have a means of transportation of supplies overland and by air in the event water transportation is denied by enemy action.

3. The Canol Project which includes development of oil fields, pipe lines, refineries, and all other accessory facilities was initiated as a means of supplying petroleum products necessary in the operation of Alaskan Highway and our vital air facilities, without relying entirely on the importation of such products from the Continental limits of the United States which would impose an additional burden on rail, highway, and water transportation facilities between the refineries in the Continental United States and all points of consumption in the Canadian-Alaskan area.

4. By development and further expansion, the above facilities can be used as an aid in the supply of Russia in the event this becomes necessary.

Sincerely yours,

ROBERT P. PATTERSON,
Under Secretary of War.

EXHIBIT No. 1135

JANUARY 14th, 1943.

Confidential

Mr. FRED SEARLS,
War Production Board, Washington, D. C.

DEAR MR. SEARLS: I have your letter of January 3, 1943, concerning the Alaskan Highway and the Canol project.

Your point as to the Alaskan Highway rests on what you call the safe assumption that the purpose of the highway must be to establish an overland route to ports on the Gulf of Alaska or to ports on the Bering Sea. With this assumption as a premise you express the opinion that freight from Edmonton to Seward or to Teller can be moved only by what you deem excessive consumption of trucks, fuel, and manpower.

The statements of opinion and the figures used in your letter are not new to the War Department. The pros and cons on the project have been so often presented and debated that the original and basic purpose of the highway has been overlooked. That purpose was not the purpose "safely assumed" in your letter. In view of your interest in Alaska and your cooperation with the War Department, I believe that it might be well at this time to review the controlling considerations involved in the conception and execution of the project.

The project was presented in the summer of 1941. After study by the engineers, it was disapproved by the Secretary of War. After Pearl Harbor, however, the President directed the Chief of Engineers to proceed with the project of building a highway across Canada to central Alaska.

In January 1942 Colonel Delano, Chairman of the National Resources Commission, made the proposal that a railroad be built from Prince George to Fairbanks, in lieu of a highway as a line of communication for war purposes. The Chief of Engineers referred the proposal to the General Staff, and a complete study of the problem was undertaken by the War Department in conjunction with the Navy, the National Resources Commission, the Bureau of Public Roads, and officials of the Canadian Government.

It developed that there were four possible routes, designated as routes A, B, C, and D. Routes A and B start at Prince George and follow the Rocky Mountain Trench to White Horse and run thence to Fairbanks, with Route B the more favorable. Route C starts at Edmonton and follows the airway which was already in use by the Air Forces by flying from the United States to White Horse, Fairbanks, and points west. Route D starts at McMurray's Waterways and runs to Great Slave Lake and the Mackenzie River.

Of the four routes, Route B was the best for building of a railroad or highway. Route C was deemed difficult for building of a highway and not to be considered for a railroad. It was by far the best, however, for an airway. Route D was considered practical for limited communication over the ice in winter and by water in summer, offering a minimum amount of construction.

Route C was selected. The determining reason was that there was already in existence and in use a line of airfields from Edmonton to Fairbanks, and it was deemed necessary that these airfields should be connected by a highway in order to service the airfields and to serve as a means of safety for the men who were flying planes from the northwestern States for use in defense of Alaska. The airfields were enlarged and improved. We were aware at the time that a highway built along Route C would not serve as an adequate line for ground forces of large size stationed in Alaska. We knew well enough that the overland supply of ground forces in quantity in Alaska would require the building of a railroad from Prince George to Fairbanks. A location survey of this route has been made, but military reasons have not demanded construction of a railroad.

You will observe that the highway was built on the selected route for reasons of military strategy, primarily as an adjunct to the airway. It was not built for the reasons supposed by you to be predominant. While appendages have been added as reasons, the fundamental reason was to assist in the air route. That reason continues to exist as a sound one for the action taken.

I have gone into the matter at some length because of personal consideration for you. At the same time I should point out that the War Department by no means concedes that a project of this nature, the building of a military highway to a remote region under danger of hostile attack in time of war, is a project which the War Department is called upon to explain or to justify to the Requirements Committee or the Facilities Board. The project was one of military strategy, just as the construction of a highway in North Africa or New Guinea would be. The thought that a fortification, a line of airfields or a line of military communications deemed necessary by the Army to the effective conduct of the War should be reviewed as to its necessity by officials of the Requirements Committee or the Facilities Board is not countenanced.

The Canol project is separate but in like case with the highway. It is considered effort to serve the several airfields along the airway and possibly Central Alaska with their fuel needs. This project, if only partially successful, will solve a difficult problem for the Air Forces. Qualified and experienced men have estimated possible oil production at 30,000 barrels a day. We are not so sanguine, but actual production has increased from 500 barrels to 3,000 barrels a day recently. This is encouraging progress. The military needs for this fuel are great and are now with us, while delivery of material is slow and seasonal. If we succeed in providing a substantial part of our fuel needs locally, we will relieve to some extent the approaching shortage of such fuel from California, Mid-Continent, and Wyoming. It is quite evident that the project, being one based on considerations of military strategy, is not one for consideration by the Requirements Committee or the Facilities Board.

Sincerely yours,

ROBERT P. PATTERSON,
Under Secretary of War.

EXHIBIT No. 1136

JANUARY 15, 1943.

HON. ROBERT P. PATTERSON,
Under Secretary of War, Washington, D. C.

DEAR JUDGE PATTERSON: I desire to express my appreciation of your letter of January 14th. While I do not, of course, agree with the conclusions reached, I am none the less grateful for your kindly treatment of my criticism.

I felt it incumbent on me to be on record with the War Production Board as to what I consider an expenditure of resources for an entirely inadequate return. Having so expressed myself and the matter being on record in the minutes of the Board, as well as in this correspondence with you and other claimant agencies, I shall initiate no further steps by way of protest, and am willing to consider the matter closed.

Permit me to thank you again for your patience in consideration of an opinion, which apparently runs definitely counter to your own.

Very truly yours,

FRED SEARLS, Jr.

EXHIBIT No. 1137

MARCH 29, 1943.

MEMORANDUM

To: Mr. Donald M. Nelson.

From: H. LeRoy Whitney.

In the course of our consideration in January of the Bahrein Petroleum Company project for the 100-octane plant, Mr. Fred Searls made the suggestion that certain refining equipment then on order for the Army's Canol project at Whitehorse, Yukon, be diverted to Bahrein. This brought the Canol project to my attention for the first time; a superficial investigation of it, which I then made, prompted me to extend my search, so that we might have a comprehensive and detailed picture not only as to Canol but also as to the Alcan Highway and the choice of air routes to Alaska.

I am now handing you herewith my report covering an extensive investigation which I have just completed on the entire situation. For your convenience I am also attaching an extra copy of my conclusions and recommendations.

Ed Locke and I have a plan for handling this matter which we would like to discuss with you as soon as you have looked over the report.

CONFIDENTIAL MEMORANDUM

ALCAN HIGHWAY AND AIRWAY—DAWSON CREEK, BRITISH COLUMBIA, TO FAIRBANKS, ALASKA, VIA WHITEHORSE, YUKON

CANOL PROJECT—DEVELOPING OIL AT NORMAN WELLS WITH CRUDE PIPE LINE OVER MACKENZIE MOUNTAINS TO MAYO, YUKON, THECNE TO WHITEHORSE; CONSTRUCTION OF REFINERY AT WHITEHORSE AND ADDITIONAL PIPE LINE WHITEHORSE TO FAIRBANKS

MAPS

For topography of area, see Map 1—"Physical Map of Canada." Alcan Route marked in blue, Mackenzie River Route marked in red.

For then-existing air routes and railroads, see Map 2—"Mineral Map of Dominion of Canada," published 1939.

For petroleum geology, see Map 3—"Dominion of Canada, South of Latitude 75°." On this map is located Canol Project and crude pipe line to Whitehorse and Alcan Highway in black; Mackenzie River Route in red.

For northern hemisphere perspective, see Maps 4 and 5—"The Northern Hemisphere" and "North Pacific Ocean." Existing and proposed air routes marked in red, Alcan Highway marked in blue.

HISTORY

Routes of the Fur Trade.—The earliest inland route used by white men to the northwest was the Mackenzie River Route which has been used continuously ever since by fur traders, prospectors, miners, petroleum geologists, and refiners.

Steamboating on the Mackenzie.—The first steamboats were put on this route by the Hudson's Bay Company in the last half of the nineteenth century. In 1906, a sawmill was built near Fort Smith on the Slave River and the first flat-bottomed stern-wheelers of the Mississippi River type were launched in 1908. Since that time this has been the regular type of boat used. An all-weather road has been in operation around Smith Rapids, at Fort Smith on the Slave River, for many years, and with the advent of petroleum, tractor-drawn sledges have operated over most of the Mackenzie River Route during the winter months.

Airways.—The first airway in the Canadian Northwest was established in — by James Richardson of Winnipeg for the Canadian Airways. This air line operated from Edmonton to Aklavik at the mouth of the Mackenzie River, and on various other routes. (See Map 2.)

Some years later Leigh Brintnell, an experienced northern pilot, started his Mackenzie Air Service, which operated in various directions, his main line being thought of as the one from Edmonton to Aklavik. During these early years the Canadian Government discouraged rather than encouraged northern flying, as evidenced by taking competitive bids from Brintnell and Richardson, so that air mail was always carried at a loss.

Grant McConachie, a practical northern flyer and a promoter of the modern type, was the third in the field. By this time, the Canadian Government had adopted a "convenience and necessity" principle similar to that of the U. S. Government, and McConachie was told that he must find another route than those flown by Richardson and Brintnell. Making a virtue of necessity, McConachie laid out a route from Edmonton to Whitehorse to Fairbanks, which is about 100 miles shorter than the Mackenzie route to Fairbanks around the northern end of the Mackenzie Mountains which are the northern outlyers of the Rocky Mountain uplift.

The McConachie promotion.—McConachie, being a promoter and one of the outstanding men in the community began to shout from the housetops that he had the most direct route to the Orient, destined to become the main thoroughfare of aviation between the industrial center of the United States and the wealth of the Indies.

Newspapermen, who are seldom profound students of geography, climate, or other things which bear on aviation, took up the story, cheering the Napoleon of aviation in the Northwest. During this time Richardson and Brintnell went right ahead operating their airways and smiling.

At the opening of the Second World War, McConachie became affiliated with the Canadian side of the International Joint Defense Board, cultivating men of importance on both sides of the border and claiming that his route was the most direct route to Japan, China, and the Soviet Union.

The Dominion Government steps in.—By the autumn of 1940 it was common knowledge that the Canadian Government was going to help McConachie in the development of his airports and throughout 1941 the Canadian Government poured money into the McConachie Line, and it became generally understood that the main airway from the interior of the North American continent to Fairbanks would be via Fort St. John, Fort Nelson, across the Rocky Mountains via the Ladd River Valley and Watson Lake to Whitehorse.

Canadian Pacific Steps In.—About the same time the Canadian Pacific Railroad, evidently not wanting to be left out, stepped in and bought out the McConachie Line. They then bought from Richardson's estate his interest in his air lines and also bought the Mackenzie Air Service from Brintnell. This action definitely eliminated all competition and the embarrassment of the Richardson and Brintnell air lines publicizing that they had the best and most logical route from every point of view.

The U. S. Army Chooses the McConachie Route.—From the records it is apparent that the U. S. Army was not actively interested in an overland route to Alaska until after Pearl Harbor. The Army was then bombarded with newspaper articles, letters, and requests for interviews urging a railway up the Trough between the Coast Range and the Stikine Mountains (see Map 1), extending from the Canadian Northern Railway to the Whitehorse-Skagway

Railway at Whitehorse, and also urging an all-weather road over this route and an airway. Many also urged the Mackenzie Valley Route.

The only logical explanation of Army's decision to use the Alcan or McConachie Route is that the Canadian Government and the Canadian Pacific Railroad urged it because Stefansson and every outstanding geographer, meteorologist, geologist, or engineer on record in writing or verbally, in and out of the U. S. Army, Canadian or American, with a knowledge of the country, unanimously endorsed the Mackenzie River Route. Alternate routes are as follows:

1. Routes from South:
 - (a) Fort Nelson-Simpson-Mackenzie River Route to Fort Norman.
 - (b) McMurray-Fort Smith-Hay River-Simpson-Mackenzie River Route to Fort Norman.
2. From Fort Norman into Alaska:
 - (a) East bank of the Mackenzie to junction with Caracajou River, Peel River Valley Route to Eagle and Fairbanks.
 - (b) Follow Mackenzie Valley to McPherson thence over a lower point in the Divide to Circle and Fairbanks.

METHOD OF TRANSPORT

Most of the men with knowledge of the North country recommended the transport of heavy materials and equipment, as follows:

1. In summer, from Rail Head at Waterways, near McMurray, by boat down the Athabaska River to the Rapids on Slave River, around these Rapids on the all-weather road, thence by boat again to Great Slave Lake and down the Mackenzie River to the mouth of the Caracajou.

2. In winter, using tractor-drawn sledges over the same route, on river ice or on ice roads.

One of the objections recently raised against the Mackenzie Valley Route is that because of prevailing clear weather there is insufficient snowfall in November and December to permit the use of tractor-drawn sledges. Stefansson advises that by proper arrangement of cleats on tractor treads that this difficulty has been overcome.

SUPPLY OF PETROLEUM

Stefansson, in particular, urged the development of the Athabaska Tar Sands at McMurray, and of the Norman Wells field of Imperial Petroleum Company, with refineries at both locations to produce heavy bottoms for airfield and road surfacing, fuel oil or diesel oil for the river boats, diesel oil or gasoline for the tractors, and aviation gasoline. Stefansson also urged a pipe line from Norman Wells to Eagle, on the Yukon, via the Peel River Valley, this pipe line to carry fuel oil diluted with gasoline in winter to be barged down the Yukon to a ship-refueling station at the mouth of the Yukon, also to carry lighter petroleum products needed along the route, including aviation gasoline.

OBJECTIVE

The Alaska-Yukon country is a most imposing barrier to invasion by land troops, and it seems unnecessary to maintain large numbers of troops in Alaska. If it had been decided that we must maintain large numbers of troops in Alaska, a railway up the Trough east of the Coast Range would be the only possible method of transporting and sustaining them if the water route from Puget Sound, north were infested by submarines, which it is not, and so far never has been. The only logical method of transporting troops, munitions, and supplies to Kodiak or the Aleutian Islands is by ocean transport. Because of the extremely bad flying weather along the coast or through the Trough east of the Coast Range, an air route to Alaska further to the east would seem a vital necessity, both as a means of getting airplanes to the Soviet Union and to China, and to get airplanes to defensive airports in Alaska. Alaska seems much too distant to be used as an offensive base.

CHOICE OF ROUTES

Meteorological data.—From all the evidence at hand, written and verbal, the Army never consulted the Joint U. S. Meteorological Committee, aviators who have flown the northwestern routes, or any competent authorities, Canadian or American.

In my informal discussion with Lieutenant Commander McGinniss, Secretary of the Joint U. S. Meteorological Committee, he produced all his weather maps and showed me that the prevailing winds between Fort Nelson and Fairbanks are from the northwest which would cause most of the precipitation and bad weather to take place over and west of the Mackenzie and Stikine Mountains, and that a prevailing high-pressure area with the best flying weather prevailed east of these mountains. Commander McGinniss stated that the best route from the mouth of the Carcajon would probably be via McPherson then over the low Divide, but he thought the Peel River Route would probably be satisfactory. Pilots flying the Alcan Highway Route state that the Fairbanks-Whitehorse section is the worst route they have ever flown and that the Fort Nelson-Whitehorse section is almost as bad.

Summary.—From all the evidence at hand the Mackenzie River Air Route will have to be established, if it is proposed to get any number of planes to Alaska, Siberia, and on. There has been no submarine menace in the eastern Pacific, so there is no need for a road other than that necessary to service the airfields. There is water transport in summer, and in winter ice road transport can be established along the entire flat Mackenzie River Route, capable of transporting more freight than can be transported over the steep grades of the Alcan Highway. The only immediate available sources of petroleum are at McMurray and Norman Wells.

Accordingly, the Mackenzie River Route should have been the route originally chosen and should now be the established route.

CANOL DEVELOPMENT

Norman Wells crude.—It is estimated that crude oil can now be produced from old and new wells in this field at the rate of approximately 3,500 barrels per day. The pour point of the Norman Wells crude as at present established by the Imperial Oil Company is -40° F.

Temperatures.—The average of low temperatures at Fort Norman and Dawson from November to April is approximately -53° F. and the average of low temperatures in the Mackenzie Mountains is unquestionably lower. Therefore attempting to pump Norman Wells crude, even with its abnormally low pour point, through a $4\frac{1}{2}$ " pipe-line over the Mackenzie Mountains to Mayo, then to Whitehorse appears to be the height of folly, even if the pipe line and pumping stations can be built and maintained.

Terrain.—Maps 1 and 3 show the terrain over which it is proposed to build the pipe line. If it is attempted to bury this pipe line in the ground which is frozen to a depth of 50 ft. and thaws out to a depth of 2 ft. to 5 ft. it will be torn apart during the autumn freezing and the spring thaws. Accordingly, the pipe line will have to be laid on the surface. Examination of the maps shows that at least seven river valleys have to be crossed. When the ice goes out in the spring, these rivers rise from 30 ft. to 40 ft. and ice jams are frequent. Accordingly, suspension bridges will have to be erected at all stream and river crossings well above high-water mark. It will be necessary to build a road along the route of the pipe line to transport pipe, pumps and all other necessary materials, and again referring to the maps and to the statements of the men who know and have operated in the north country, the construction of such a road and pipe line is the opposite of practical.

Refinery at Whitehorse.—The only possible excuse for a refinery at Whitehorse would be that the heavy fuel oil could be transported in tank cars via the railway to Skagway. However, the amount of fuel oil produced from a refinery with a throughput of 3,000 barrels per day would be only approximately 800 barrels per stream day, a "drop in the bucket" for Navy and cargo ship needs. It is a long way via Chatham Strait and the Pacific Ocean to the Navy Base at Kodiak, and the route far more exposed than the route from Chatham Strait south through the "Inside Passage" to Vancouver and Seattle.

All competent men agree that the building of a refinery at Whitehorse dependent on a 3,000-barrel-per-day capacity pipe line on the Yukon climate is, to say the least, most impractical. If a refinery is to be built anywhere in this area, Norman Wells is the logical location, and even there as water must be used for condensing and other purposes, the operation of a refinery where the mean low temperature through the winter is -15° F, and the average low temperatures November through April is -52.4° F, there are many very real engineering problems.

Consideration by Army of Qualified Opinions.—A search of the records reveals that the Army never even consulted or discussed the Canol Project with the Petroleum Administration for War, that they completely ignored the statements of Mr. Eugene Holman, of the Standard Oil Company of New Jersey, and the statements of the Staff of the Imperial Oil Company, Ltd., of Canada. Mr. Stefansson advises me that he asked Generals Pryon and Sturdevant if they had approved this project and they replied in the negative.

PRESENT OPERATIONS IN NORMAN WELLS AREA

Mr. Terry Duce, Chief of the Foreign Department of the Petroleum Administration for War advises me that an Air Corps Officer whom he interviewed, who has recently returned from the Northwest area advises that:

1. Various parts of the Alaska, Northwest Territories project have been rearranged as to priorities, as follows:

- (a) Aviation—fields, etc.
- (b) Road.
- (c) Ferry Command.
- (d) Canol Project.

2. Amount of freight now transported over Alcan Highway under ice and snow conditions, 1,000 tons per day. Maximum tonnage during spring thawing 200 tons per day. Summer (?).

3. The Army is having an enormous amount of trouble with equipment. If truck engines are not left running during the night or during rest periods engines will not start, and unless fires are kept burning under transmission and axels, wheels will not turn.

4. There are 5,000 men in the Norman Wells area and Army is using, breaking, and wasting a vast amount of equipment.

5. Weather on air route, Whitehorse to Fairbanks has proved very bad. Fort Nelson to Whitehorse is next worst.

SUMMARY OF ALCAN AND CANOL PROJECTS

Mr. Fred Searls, Jr., letters to the Under Secretaries of War and Navy dated December 16, 1942, and January 3, 1943, and Under Secretary of War Patterson's reply, dated December 19, 1942, are most illuminating. I quite agree with Mr. Searls' findings that something over 200 million dollars of man-hours and materials are literally being thrown away on the Alcan Highway and Canol Projects.

SOURCES

Articles by Richard Finnie in *World Petroleum*, 1940 Annual Refinery Issue, and in *Geographical Review of American Geographical Society*, July 1942.

Letter of Fred Searls, Jr., to Under Secretaries of War and Navy, and others, dated December 16, 1942. Under Secretary Patterson's reply to Mr. Searls dated December 19, 1942, and Mr. Searls' letter to Under Secretaries of War, and Navy, and others, dated January 3, 1943.

Letter of Mr. Fred Searls Jr., W. P. B. to Mr. Phillip Smith, Chief Alaskan Geologist, U. S. Geological Survey, dated December 21, 1942. Mr. Smith's reply to Mr. Searls, dated December 31, 1942.

Report of Glen M. Ruby, Consulting Geologist "Report on Petroleum and Future Possibilities of the Mackenzie River District, N. W. T. Canada" dated October 3, 1942.

Report of N. E. Baker, Standard Oil of New Jersey, Geologist—"Oil Possibilities Western Canada, Northwest Territories and Yukon" dated February 20, 1943.

Vilhjalmur Stefansson, February 27, 1943, "Routes from Edmonton to the Orient—Fact and Hypothesis."

Mr. H. LeRoy Whitney searched files in Office of Strategic Services, January 27, 1943.

H. W. E. Riley, "U. S. Military and Public Roads Administration Operations in Northwest Canada and Alaska," March 22, 1943.

Verbal interviews.—January 26, 1943, with Lt. Cdr. McGinniss, U. S. N., Secretary, Joint U. S. Meteorological Committee.

January 28, 1943, with Mr. Welch Pogue, Civil Aeronautics Board.

Telephone and verbal conversations with Mr. Eugene Holman, Director, Standard Oil Company of New Jersey, February 1943.

Conversations reported to me by Mr. Terry Duce, Chief, Foreign Department, Petroleum Administration for War, with Army Officers of various Services, who have been in the Northwest Territories-Alaska area during the past several months, and conversations with high-ranking Army Officers as reported to me by Mr. Stefansson.

Stenographic notes taken of conversation with H. E. W. Riley, on March 22, 1943.

CONCLUSIONS AND RECOMMENDATIONS

1. Highway and air route to Alaska.

Although in my considered opinion the Army has used bad judgment in the choice of routes for both the highway and the string of airfields to Alaska, in the face of practically unanimous advice to the contrary from the most qualified experts, and therefore has wasted vast amounts of transportation, scarce equipment, critical materials, and man-hours, the War Production Board is in a difficult position to take corrective action because of the predominantly military character of these projects. I question the propriety of our intervening as the War Production Board in the military aspects of this situation, but I do think it is both our right and our duty to insist that the present wastage of scarce materials and equipment be immediately stopped. I therefore recommend that the Chairman of War Production Board take prompt and appropriate steps toward this end.

2. Oil projects—Canol, McMurray-Athabaska, etc.

As for oil developments in the Northwest portion of this continent, however, I am of the opinion that these are very much within the responsibilities of the civilian agencies of the Government, particularly the Petroleum Administration for War and the War Production Board, and should be kept definitely outside of the jurisdiction of the military.

The Canol project has so far been exclusively handled by the Army, and in a most unsound way from every point of view, as outlined in detail in the body of this report. I have been informed that the Army is also now intervening in the McMurray-Athabaska situation. At the same time there is an urgent need for all oil developments in the Northwest (including both Canada and Alaska) to be fully coordinated with each other as well as with the strategic plans of the Chiefs of Staff.

Therefore, I recommend that the Chairman of the War Production Board present this problem at once to the Petroleum Administrator, with a view to having the latter take the lead in arranging promptly for a fully integrated program of petroleum development in that whole area. The Petroleum Administrator should collaborate closely with the Canadian authorities, the Chiefs of Staff, and the War Production Board, but the actual carrying out of the program should be under the full control and authority of P. A. W., subject to such general strategic and W. P. B. directives as may be appropriate.

EXHIBIT No. 1138

WAR DEPARTMENT,
OFFICE OF THE DIVISION ENGINEER, NORTHWEST DIVISION,
Edmonton, Alberta, Canada, February 28, 1943.

Mr. H. W. E. RILEY,
War Production Board, Washington, D. C.

DEAR MR. RILEY: As you know, the Northwest Division, Edmonton, Alberta, is engaged in the war effort program and especially the completion of the Canol Project, the Alcan Highway Project, the construction of port facilities at Prince Rupert and Skagway, and allied construction. The favorable working season in this area is only of five months' duration, from June to November. The physical effort required for operations planned during the season 1943 are at least fivefold those which were accomplished during the working season 1942. March, April, and May are the preparatory period and on the 1st of June all equipment, materials, consumable supplies, and the workmen must be brought together

at the site of the work and the construction program prosecuted with the utmost zeal to accomplish this important construction. If any one of these elements is missing or short, the entire program could and may collapse.

At the present time the Procurement Section of the Office of the Division Engineer is engaged in the procurement, transportation, and delivery of equipment, materials, and consumable supplies to the site of the work. As you know, close cooperation with the War Production Board and its agencies is essential in order to accomplish this procurement program in time to assist in accomplishing our objective. It is my view that the procuring of as many local materials in Canada as possible, without depleting Canadian stocks, is a sound policy because it minimizes the transportation problem and obviates the necessity of long hauls from the United States utilizing rail and marine equipment which could probably be better used elsewhere, therefore I hope that you will be able to arrange with the Dominion Government for the procurement of Canadian-produced goods as far as practicable.

You are also requested to bring to the attention of your superiors in the War Production Board the necessity of prompt action in the procurement of equipment, materials, and supplies from the United States needed for this construction in order that all the things needed can be delivered to the site of the work by June 1st.

Any aid that you can render in assisting me in this procurement program will be greatly appreciated both by this office, its field agencies, and by the Engineer Department.

Sincerely yours,

THEODORE WYMAN, Jr.,
Colonel, Corps of Engineers, Division Engineer.

EXHIBIT No. 1139

MARCH 22, 1943.

MEMORANDUM

To: Mr. H. LeRoy Witney, Executive Office of the Chairman, War Production Board, Room 4513 S. S. B.

From: H. W. E. Riley, Chief, Edmonton Section, Canadian Division, W. P. B.

Subj.: U. S. Military and Public Roads Administration operations in Northwest Canada and Alaska.

Pursuant to my discussion with you and Mr. E. A. Locke, Jr., regarding subject matter, I give you here below a general outline of the U. S. Military and Public Roads Administration activities in the Canadian Northwest and Alaskan territories.

The following condensed information is the sum result of a one-man survey of one month and from one point of operation only, namely, Edmonton, Alberta. The time period was the month of February and the first few days in March.

Since returning to Washington I have been in close contact with the following offices:

- U. S. Engineers Dept.
- Office of Chief Engineer
- Services of Supply
- Public Roads Administration
- Several W. P. B. Divisions who have a major interest in the Northwest projects.

This report is, therefore, my reflection of the many personal and official opinions of the various interests involved in the vast undertakings.

Military.—The U. S. Army Northwest Command, with headquarters in Whitehorse, Y. T., established on December 1, 1942, the U. S. E. D. Northwest Division, with headquarters in Edmonton, Alberta, the purpose being to centralize control of all projects.

The attached copy of a letter addressed to me by Theodore Wyman, Jr., Colonel, Corps of Engineers, Division Engineer, best outlines the responsibilities and problems of the Engineers.

On January 11, 1943, the commanding officer of the Northwest Service Command notified the District Engineers that all procurement was to be effected through

the Division Engineer, Edmonton, who is in charge of the following District offices:

Vancouver, B. C.
 Prince Rupert, B. C.
 Dawson's Creek, B. C.
 Whitehorse, Y. T.
 Fairbanks, Alaska
 Edmonton, Alberta

Due to the lack of office space and living quarters, it has been impossible to properly staff the Division office for centralized procurement at once and the District offices are still controlling the requisition flow. However, additional living, administrative, and hospital quarters are being completed and the staff is to be increased to assume control in the near future.

Material requirements for prime and sub contractors operating under the direction of the Division Engineer are supposed to be screened by his office. However, there are exceptions permitted, for example: One contractor can purchase up to \$8,000 per order without securing the approval of the Engineer Supply or Procurement officers.

Public Roads Administration.—This organization is in charge of building the Alaskan Highway and recently moved its divisional offices from Seattle, Washington, to Edmonton, Alberta, to effect a closer working arrangement with the military. The requirements of the prime and sub contractors to date have been secured both direct from suppliers and through P. R. A. The military central-control plan would provide for P. R. A. requirements to flow through the Division Engineer but at this time, due to the divided responsibilities of the Engineers and the P. R. A., this plan has not been completed.

At the present time P. R. A. contractors are making applications to various W. P. B. divisions for material out of the civilian allocations. The P. R. A. are endeavoring to secure needs, and at the same time have presented to the Division Engineer a list of their requirements, in the hope that they may be supplied out of military pools. The result is duplication or triplication. This condition also exists with contractors operating under direction of the Engineers.

Transportation.—Authoritative sources estimate that the material requirements for the existing programs would constitute a freight movement of 200,000 tons per month.

At the present time a partial embargo exists on freight into Edmonton. Many cars of freight are backed up all along the Canadian Pacific and Canadian National rails. The capacities of the Northern Alberta Railroad from Edmonton to the rail head are taxed to the limit. To relieve this condition approximately 100 cars of freight per day are being unloaded on sidings in Edmonton and, within the limits of the available motor equipment, are being freighted north in convoys.

To move the programmed freight from railheads to destination it has been estimated that the operation of some 36,000 vehicles would be needed, plus the rebuilding of both highway and railroad facilities.

Construction Machinery.—An inventory of existing equipment on all Northwest projects was initiated early in February and it is expected that this work will be completed about March 25th. Estimates place the value of Caterpillar tractors at \$12,000,000, and at the present time about 75% are out of commission, awaiting repair parts. Engineers and qualified distributors estimate the need of \$300,000 worth of Caterpillar parts per month. This is based on existing equipment and the amount of additional equipment needed to complete the projects as scheduled.

Dollar value of other construction equipment in this field is unknown at this time.

Motor Vehicles.—Of the 6,000 to 7,000 vehicles, it is estimated that 50% are not worth rebuilding and will be scrapped.

The equipment includes used units secured from U. S. Engineer Divisions, C. C. C., P. W. A., and new stock of civilian pools. The variety of models adds to the parts problem.

Unsuitable and worn-out equipment from C. C. C. and P. W. A. is adding to the freight load into Edmonton and is in such condition that much of it will not survive the hard trip North. A rigid inspection of such equipment by proper authorities at shipping points would save additional and useless transportation loads.

Replacement Parts and Maintenance Service.—Estimated inventories of all motor and construction machinery replacement parts are placed at \$2,000,000. This includes the inventories of prime and sub contractors.

The plans of the Engineers call for redistribution to key service points of all parts now in the territory. This program provides for centralized procurement for all part needs on a basis of anticipated requirements for 30 days—plus a monthly inventory control. To effect this important operation warehouse facilities must be erected and qualified management provided to prevent stockpiling.

Lack of warehouse facilities during the past winter caused much damage to parts that were left out in the open during the extremely low temperatures. The anticipated inventory will indicate losses as well as the existing long and short parts stocks.

The Engineers estimate \$4,500,000 worth of motor-vehicles parts will be needed during the balance of this year and that their immediate needs to balance stock will amount to \$500,000.

Maintenance shops are already in operation and more are planned. Some duplication of facilities now exist but steps are being taken to get maximum use out of existing shop equipment.

Tires.—Tire mileage is estimated at 3,200,000 miles per day. Salvage and repair to date have left much to be desired. However, it is hoped that the planned centralized tire-service plant will be in operation in Dawsons Creek within two months. A building is to be built for the purpose and the work performed under private management.

Conservation, Substitution, and Salvage.—A broad problem exists here due to the far-flung operations and the present lack of centralized control. A study of conditions either known or existing in Edmonton indicates much constructive work can be done. The Engineers have been cooperative in launching suggested programs to conserve material, for example, a drive has been started to salvage and repair, as well as to return to service, great quantities of oil and grease drums that had been scattered all over the operations.

Inventories of equipment and supplies have been initiated to curtail additional PD-3A applications. Stockpiling in the Edmonton district on the part of the contractors is being checked.

Materials entering into construction are being screened for prohibitions as defined by A. N. M. B. Excessive use of such prohibited items as plywood, fluorescent lighting, certain lumber grades, etc., in the past is evident.

The actual execution of such conservation programs is the function of the military, but it is evident that the initiative will have to come from the outside.

Canadian Government Cooperation.—Due to the magnitude of the U. S. Military operations in this Canadian territory, the urgency of needs and the lack of central control, the heavy drain of materials and foods from Canadian sources has created a serious dislocation of Canadian civilian economy in this area. As a result of a survey made by the Dominion Government, a purchasing company is being formed to purchase all military and contractors' needs secured from Canadian sources. This crown company, the Northwest Purchasing, Ltd., will screen all centralized needs and will be an effective medium, it is hoped, in eliminating long transportation hauls, expediting delivery, adjusting local inventories, make available surplus Canadian-owned materials for the American military, etc.

Summary.—To effect the completion of the Navy programs this year, in accordance with the present military plans, it is estimated that five times the effort of the past year's operation must be expended.

Should all the construction materials entering into these projects and labor be available, it is evident that transportation places a definite limit on the operations.

At this time it appears that less than 40% of the necessary construction machinery and motor vehicles needed to maintain the present schedule are to be obtained through military sources.

Consideration of the many factors involved in the Northwest operations lead to the conclusion that:

1. Projects must be analyzed from the standpoint of importance to present War plans.
2. Projects must be cut back in relation to available transportation means.
3. The entire program be redefined as to logical steps to attain objective.
4. Centralized control be effected for the equitable distribution of available material and equipment.
5. All operations and requirements in this area to be considered military.

EXHIBIT No. 1140

[Stenographic notes of conversation with H. W. E. Riley]

MARCH 22, 1943.

CENTRALIZATION OF AUTHORITY

Until the Division Engineer's Office was established in Edmonton on December 1, 1942, control of the multiple operations in the North, as a result of what I have observed, was not an effective central control. At the present time, the responsibility for the operations in the territory is under the control of the District Engineer, but due to lack of sufficient staff, housing to take care of the staff and administrative office facilities, the District Engineer's office is not manned to do an effective central control job at this time. Centralized procurement was made mandatory by the Commanding Office of the Northwest Services Command on January 11th, but due to the inability of the Division Engineer to assume the immediate responsibilities involved in centralized control and procurement, the six District Engineer Offices continue to direct the paper flow. The six District offices are in Vancouver, Prince Rupert, Dawson Creek, Whitehorse, Fairbanks and Edmonton. Requisition of flow at this time from the several district offices does not permit centralized screening; in other words, it is unknown at this time the amount of War Production Board paper that is cleared through the United States Engineer suboffice in San Francisco.

For example, during this visit to Washington, I discovered an application in the Construction Machinery Division for 6 rock crushers, valued at \$156,000 each, which had cleared through the U. S. E. D. suboffice, San Francisco. From the meager information on the application it was evident that the rock crushers involved were to be used in the construction of a year-round road, which the Office of the Chief of Engineers, Washington, intended to be only a winter road and was not aware of the projected plans for making this existing road a year-round highway. In other words, the O. C. E. just wasn't aware of how this material demand was initiated, originated, who approved it, or who was involved, and right on the face of it they said they weren't interested and asked our cooperation in squashing it. (This material was probably in relation to the MacKenzie Valley.)

The following interesting information was secured from an authoritative source. It has been calculated that the material needs involved in the multiple operations in the Northwest would involve the movement of 200,000 tons of freight a month. To move 200,000 tons of freight a month it has been estimated that some 36,000 motor vehicles would be needed, assuming that all of the material requirements were available for the projects and that the cargo vehicles were obtainable. Such an operation would involve the complete rebuilding of the highway to carry the load. It would also be necessary to rebuild the railroads into Edmonton. It is perfectly obvious that a complete analysis of the existing plans should be made in relation to their importance to the war plans and that a restatement of their objectives in relation to time and the available facilities be made.

With a divided responsibility, both in the Engineer's Office and the Public Roads Administration through the lack of a firm Central control on all operations, in returning to Washington and making my reports to the major authorities involved it has been my objective to effect such understanding and action as would definitely influence a centralized control. To effect this action I first contacted authorities of the Public Roads Administration and as a result of a man-to-man discussion of the issues involved, particularly that of divided responsibility, I secured their concurrence in a plan to centralize control.

Following this agreement I contacted the O. C. E. (General Robbins, Sharrell, Needles, Holtz), analyzed the situation as I saw it from the W. P. B. standpoint, explained the nature of my discussion with the P. R. A. and their sentiment. This office concurred in the need. Following my contact with General Robbins I talked with the S. O. S. (Colonel Heiman, Capt. Carpenter), explained the two previous steps, the general issues involved, and was given evidence of their complete cooperation in effecting such a central control.

If the construction work in the Northwest were to be done during peacetime, the equipment and machinery would be used probably only 6-7 months out of the year. The wear and tear on the mechanical items up there is estimated to be about 4 times as of any other known service. The extremely low temperatures

cause crystallization and damage to parts beyond any means of calculating. At the present time 75% of the \$12,000,000 worth of caterpillars on that operation are out of commission awaiting repair parts and the entire operation is actually only as effective as the track-laying tractor equipment.

The program must be cut back to available transportation.

EXHIBIT No. 1141

[EXHIBIT C-6]

STANDARD OIL COMPANY OF CALIFORNIA,
San Francisco, California, June 4, 1942.

HONORABLE HENRY L. STIMSON,
Secretary of War, Washington, D. C.

DEAR SIR: On May 28th I addressed two letters to you in reply to your communications of May 23d, wherein you requested that Standard Oil Company of California make certain of our employees available as consultants to the United States in carrying forward a project to construct and operate a pipe line from Norman to Whitehorse, Canada, and construct and operate a refinery located at Whitehorse, The Yukon, and indicated our complete willingness to make available our services as consultants and to undertake the responsibility requested of entering into a management agreement with the United States.

We are going ahead making the necessary studies to properly carry out this obligation, but from the preliminary studies we have made we feel responsible as consultants to place before you the following information:

1. To construct a pipe line from Norman to Whitehorse and a suitable refinery at Whitehorse will require a minimum of 7 months in time and probably it will be nearer 9 months before this project can be in operation. This time will be necessary on account of the transportation difficulties in getting material into these projects, coupled with the fact that the pipe line is to be built through an almost entirely unexplored country.

2. The completion of this project in the middle of the winter means that the pipe line and refinery will be put into operation at the period of the year when the climatic conditions are at their worst, and owing to this situation we could anticipate that further delays would occur.

3. After the refinery is in operation the production of 100-octane gasoline will be in the neighborhood of 300 barrels per day, or approximately 125,000 barrels per year. This means that it would be almost a year after the refinery is in operation before any appreciable amount of inventory would be available. From our observation this might mean that supplies badly needed would be "Too little, and too late."

4. We understand that there is no definite assurance that a sufficient or permanent crude supply will be available at Norman as indicated by Mr. R. V. Le Sueur's letter to Brigadier General A. H. Carter dated May 2, 1942.

Inasmuch as our outpost in Alaska was attacked yesterday by the enemy, we feel it incumbent upon this Company in particular and the Oil Industry in general to do everything possible to devise ways and means to get supplies to our fighting forces at the earliest possible date. With this in mind, a careful study has been made by our own organization, in conjunction with the Contractors, Bechtel-Price-Callahan, represented by Mr. Bechtel, and the Architect Engineers, J. Gordon Turnbull and Sverdrop & Parcel, as represented by Mr. Turnbull, and we respectfully submit the following plan for your consideration:

That adequate bombproof storage, say 100,000 barrels, be built at or near Prince Rupert, Canada—probably the best location would be in the vicinity of Hazelton, which is approximately 150 miles inland from Prince Rupert. The advantage of a base storage at this point would be that petroleum products could be delivered to it from California via water or from the oil fields in the Provinces of Alberta and Saskatchewan, Canada, via rail, or from the Montana area in the United States via rail; in other words, a base storage would then be located at both a railroad and a port of entry from the Pacific. From this base storage it is then proposed to construct a pipe line to intersect the proposed highway now being constructed from Edmonton to Whitehorse, near Lake Teslin. The route of the pipe line would then follow the proposed highway on north into Whitehorse, where terminal storage could be built, also intermediate storage could be built

between the base storage and Whitehorse. Further, it would be possible to run feeder pipe lines out from Whitehorse or from intermediate points to any air bases that might be desired. The advantages of such a plan would be:

1. That it could be constructed and in operation in 120 days or less.
2. That aviation gasoline could be distributed from the base storage to or near projected airports by pipe line far enough inland so that no interference would be anticipated from a sea attack.
3. That supplies could be moved into base storage to the farthest north point accessible by both rail and water.
4. If the present contemplated Norman-Whitehorse project is carried to completion, each project would supplement the other in moving supplies to needed points and, at the same time, by going ahead with this recommended project these supplies would be made available from 6 to 9 months sooner and in as much greater quantity as may be needed.

We are simply putting before you, as consultants, a plan which we believe will mean considerable in time and it is our understanding that time is the essence of this entire project. For your convenience, a map outlining these projects is enclosed.

Yours very truly,

J. L. HANNA.

EXHIBIT No. 1142

[EXHIBIT C (1)]

STANDARD OIL CO. OF CALIFORNIA,
San Francisco, Calif., April 1, 1943.

Canol Project.

Mr. R. W. COGHILL,

*Executive Office of the President, Bureau of the Budget,
Washington, D. C.*

DEAR SIR: In order that the position of the Standard Oil Company of California with respect to the pipe line and refinery features of the Canol Project may be a matter of record, we are presenting herewith the following review of our participation in this project.

On May 23, 1942, this Company was asked by the Secretary of War to make available consulting services in connection with the design and construction of a crude oil pipe line between Norman, District of Mackenzie, Canada, and Whitehorse, The Yukon, and the design and construction of a refinery to produce 100-octane aviation gasoline, and other petroleum products at Whitehorse. We were asked at the same time to undertake the operation of both the pipe line and the refinery when completed. This project was described by the Secretary of War as a defense measure essential to our war effort in that region. We agreed to comply with these requests. Our correspondence is attached.

We then received the attached letter contract dated May 25, 1942, outlining the scope of the project.

After making a careful study of the project as outlined in conjunction with the Constructors and Architect-Engineer, this Company addressed a letter to the Secretary of War on June 4, 1942, copy attached, in which we pointed out the considerable time that must elapse before a substantial supply of aviation gasoline could be made available through operation of the Whitehorse Refinery, and the uncertainty as to the availability of a sufficient or permanent crude supply at Norman. We accordingly suggested a plan for transporting petroleum products via water from California, or rail from Canada, to the vicinity of Prince Rupert, from where they could be distributed to strategic areas via pipe lines. The outstanding advantage of this plan was that it could be put into operation much sooner than the Norman-Whitehorse project at much less cost and with much less use of critical material and manpower.

Since this plan was proposed we know of no developments which would lead us to change our opinion as to its desirability over the refinery and crude pipe line.

The scope of the original Canol Project was later modified and extended to include a 4-inch gasoline pipe line from Skagway, Alaska, to Whitehorse, together with storage and loading facilities at Prince Rupert, terminal storage facilities at Skagway and Whitehorse, and a barge line between Prince Rupert

and Skagway. We were advised of this modification by telegram on June 29, 1942. This product pipe line system was subsequently further enlarged to include pipe lines from Carcross to Watson Lake, from Whitehorse to Fairbanks, and from Fairbanks to Tanana, together with the necessary terminals and tank-age facilities.

The responsibility of the Standard Oil Company of California in the original project was limited in contract No. W-2385-Eng-6 to the performance of certain consulting services and to making available its laboratory facilities in connection with the design and development of the necessary structures. This responsibility was extended on November 20, 1942, to include full responsibility for the approval of all engineering designs for all structures and engineering services for the Canol Project, including those designed by the Contractors and by the Architect-Engineer. This Company has had no responsibility for the basic strategical reasons for the Canol Project, and has been so instructed in writing to this effect by the Army (See letter of March 21, 1943, attached).

The extent to which we have participated in the development of the several aspects of the Canol Project is generally indicated below:

REFINERY PROJECT

The original refinery plan as submitted by this Company was for crude distillation, thermal cracking and reforming, alkylation and isomerization units. This plan was originally accepted by the U. S. Engineers and then at a later date through discussions it was decided to increase the refining facilities to produce a maximum yield of 100-octane aviation gasoline from 3,000 barrels per day of Fort Norman crude. Our interpretation of "maximum yield" was the largest quantity of the required product that could be obtained from the raw material by the best known refining processes in existence. This was orally confirmed by the U. S. Engineers' representative. We accordingly recommended a Houdry Catalytic Cracking Process, which increased the yield of 100-octane aviation gasoline to 1,505 barrels per day, together with 541 barrels per day of motor gasoline. This proposal was formally approved by the War Department.

Initially, when thermal cracking only seemed desired, negotiations were initiated either by the constructor or War Department for the purchase of the Bareco Refinery at Corpus Christi. It was felt that purchase of an existing refinery would save time, critical materials, and money. To this we agreed. Modification of our proposal to include catalytic cracking meant that the Bareco Refinery would be larger than necessary. However, it was decided by all concerned to proceed with the purchase because the refinery was in good condition, was available, and could be delivered in minimum time.

Each process that has been selected has been proven in actual operation, and from a mechanical standpoint we know of no reason why it should not operate under the climatic conditions at Whitehorse with the design precautions that are being taken. However, even with these precautions it is hardly to be expected that shut-downs from cold weather can be entirely avoided.

CRUDE PIPE LINE

As the Army's letter contract of May 25, 1942, indicates, 4-inch pipe had been selected for the crude line before this Company had been called in. It was found that the order for this pipe had progressed too far to be changed, even though a 6-inch line of equivalent capacity would have required only two pumping stations instead of the twelve stations required for the 4-inch line. A later substitution of over a hundred miles of 6-inch pipe made possible a reduction in the number of stations to ten, which it is now planned to construct.

The route of the pipe line is to be selected and surveyed by the Architect-Engineer. Reconnaissance surveys over the general area involved have been made and approximate profiles obtained. While the route has not yet been completely determined, we do know that extremely difficult, mountainous country must be traversed.

The feasibility of pumping the required quantities of oil through this line at very low temperatures has been studied by our Research and Development Department. Our laboratory tests made on samples of oil from Norman Wells indicate that it should be possible to pump the oil without difficulty at fluid temperatures of -40° F. or lower. It must be emphasized, of course, that this conclusion applies only to the sample tested. Pumping difficulties may be en-

countered at any time if crude of different characteristics is obtained from additional wells now being drilled.

A few other hazards to operation of the line which have been considered are: Wax deposits, which might plug the line at low temperatures, will be removed by scrapers. The danger of ice forming in the line and rendering it inoperative will be minimized by the installation of a dehydrator at Norman. Finally, a down time of 20 percent has been provided for in the design to allow for mechanical difficulties and line breaks.

GASOLINE PIPE LINES

We have also served as consultants on the gasoline distributing lines described above. This system may be considered as a venture independent of the crude pipe line and refinery, and when completed will make possible the distribution of refined petroleum products from the United States and Canada over the entire area. We believe that this system is a logical solution to the problem, and it is consistent with our letter of June 4, 1942, to the Secretary of War.

RESPONSIBILITY

It is our understanding that our responsibilities in the Canol Project are:

1. To act as consultants in accordance with Secretary Stimson's letter of May 23, 1942.
2. To assume responsibility for the correctness of design of all pipe lines, refinery equipment, and other parts of the project since November 20, 1942, but not for any designs prior to that date.
3. To be responsible for efficient and competent operation of all facilities installed.
4. To be responsible for the quality of products delivered to all base terminals to the extent that all branches of the armed forces are notified as to the suitability of the products for the use for which they are required.

It is also our understanding that we have no responsibility for:

1. Exploration for or production of crude.
2. Petroleum losses due to line breaks, leaky tanks, or other failure of equipment.
3. Completion dates of construction.

CONCLUSION

In conclusion, our position with respect to the refinery, crude pipe line, and gasoline pipe lines is that:

(a) From an operating and economic standpoint, the refinery and crude pipe line are not justified to accomplish the military objective as we understand it.

(b) The gasoline lines are the most reliable and economic means of distributing in the shortest possible time the necessary quantities of petroleum products to the areas where required.

(c) The basic design features of the refinery and crude and gasoline pipe lines are sound within the limits imposed by the War Department.

We again wish to point out that we have never been consulted in regard to the feasibility of the Canol Project from either an economic or strategic point of view. However, we have willingly discharged and are anxious to continue to discharge our responsibilities in the project on the statement of the War Department that it is necessary as a war measure.

Very truly yours,

J. L. HANNA.

EXHIBIT No. 1143 appears in full in the text on p. 9666

EXHIBIT No. 1144 appears in full in the text on p. 9667

EXHIBIT No. 1145

[EXHIBIT B-5 (1)]

Letter Contract No. W-142-eng-52.

WAR DEPARTMENT,
Washington, D. C., May 1, 1942.

IMPERIAL OIL, LIMITED,
Toronto, Canada.

GENTLEMEN: You having represented that you are the owners and operators of oil leases now producing approximately 450 barrels of crude oil per day and of an oil refining plant, all at Norman wells on the Mackenzie River West of the Great Bear Lake, Northwest Territories, Canada (hereinafter called the Norman Area), and in order that an enlargement of the production of crude oil may be obtained for Northwestern Canada and Alaska, the United States of America (hereinafter called the Government), acting through its Contracting Officer, hereby places an order with you that you shall in the shortest possible time furnish the labor, tools, machinery, equipment, facilities, services, and supplies, not furnished by the Government, and do all things necessary to accomplish the following:

Item I.—Commence drilling as soon as the necessary drilling rigs and materials have been furnished and delivered at Norman by the Government and drill as rapidly as possible on locations within the Norman Area to be selected by you not less than nine additional wells and, if possible, as many more wells as may be necessary to furnish a production of approximately 3,000 barrels of crude oil per day in addition to that now being produced; also, if considered necessary by the Government, explore other adjacent areas with prospective oil possibilities geologically and, if possible, geophysically. When drilled, the wells shall be produced by you, the necessary gathering system installed, and the oil from the said wells gathered and delivered to the pipe line terminal tanks of the Government.

Item II.—Erect such field tanks at the Norman Area as may be necessary for the proper operation of the wells contemplated as rapidly as possible after the tank steel and other material necessary therefor shall have been furnished and delivered at Norman by the Government.

Item III (Optional).—The Government may at its option direct you to construct and operate a casing-head gas recovery plant (hereinafter referred to as "the plant"), in the Norman Area, and you shall construct and operate such plant on a reimbursable basis, such construction to be commenced by you as soon as the Government has furnished at Norman the machinery and equipment necessary for such plant (the season permitting such construction). Such plant shall be the property of the Government; however, you shall have the right and option of purchasing said plant at such price as may be agreed upon between you and the Government when the same is no longer required by the Government. Your right and option to purchase shall be exercised within a period of six months from the time you are notified that such plant is no longer required. The natural gas furnished by you to said plant will be processed by you in said plant for the Government and the product shall be sold to the Government at a price calculated according to the standard form of the Natural Gas Association of America, based on the price of motor gasoline at Norman, viz, 30¢ Canadian currency per Imperial gallon and the amount payable by the Government for said product will be applied to the credit of the contractor towards the repurchase of any items owned by the Government and extant in the Norman Area for which the option of the contractor to repurchase has been exercised.

IT IS UNDERSTOOD AND AGREED, that:

(a) *Wells under Item I.*—The Government shall purchase and you will sell all crude oil produced from the wells drilled under Item I hereof for a sum of \$1.25 Canadian currency net per barrel of 42 U. S. gallons corrected to a temperature of 60° Fahrenheit. Such oil shall become the property of the Government as delivered into the terminal tanks of the pipe line.

(b) *Existing Wells.*—You shall, unless or until otherwise notified by the Government, produce at your own expense the wells now existing in the Norman Area at the maximum producing rate consistent with good operating practice and shall process all of the crude oil so obtained for the production of the prod-

ucts now being produced at your refinery and the Government shall furnish the tankage necessary to receive and store the products so produced. The Government agrees to purchase and you to sell all of the said products at a price per barrel based on a price of \$1.75 Canadian currency per barrel for the crude delivered for processing, plus 65¢ Canadian currency per barrel for cost of processing and handling. Such crude oil and products as may be required for your own business is excepted from the provisions of this clause.

(c) *Repayment.*—If and when the Government has purchased from you, at the per barrel price indicated in either subparagraphs (a) or (b) above, an aggregate of 1,500,000 barrels of crude oil produced from the Norman Area (not including the amount excepted above for your own business), the sum of 75¢ Canadian currency on each barrel of oil thereafter purchased from you will be applied first, to the repayment of reimbursements made to the contractor and second, to the credit of the contractor towards the repurchase of any items owned by the Government and extant in the Norman Area for which the option of the contractor to repurchase has been exercised.

(d) *Observation of Laws.*—You will not be required to do or perform any act which would be in violation of the laws of the Dominion of Canada.

(e) *Repayment in Oil.*—The Government is to look solely to oil produced in Canada by your company for repayment of all moneys advanced and expended hereunder.

You will receive a fixed fee for the work and services included herein of One Dollar (\$1.00), and you will be reimbursed all your actual expenditures in the performance of the work and services covered herein. It is understood that all moneys paid by or due from the Government for wages and salaries (including geological and geophysical exploration), materials, tools, equipment, and supplies relating to the cost of the performance of the work and services covered herein shall be deducted from the purchase price of products purchased from you by the Government in accordance with subparagraph (c) above.

It is estimated that the cost of the materials, equipment, work, and services undertaken by you hereunder is approximately \$2,000,000 Canadian currency, the correctness of which estimate neither you nor the Government guarantee.

The Government will purchase and deliver to the Norman Area the drilling rigs, tank steel, casing, and other materials, tools, equipment, and supplies necessary for the expeditious prosecution of the work under this letter contract. Title to the wells with the casing and master gate will vest in you and title to all other materials and equipment referred to above will remain with the Government. There shall be included in the costs of the materials and equipment purchased by the Government or reimbursed to you by the Government the cost of transportation thereof to the site of the work or to the point of utilization. You shall have the right and option of purchasing such property at such price as may be agreed upon between you and the Government when the same is no longer required by the Government. Your right and option to purchase shall be exercised with a period of six months from the time you are notified that such property is no longer required.

It is contemplated that this letter contract will be supplemented by the execution of a formal contract between you and the Government following, in general, and only insofar as is applicable, War Department Fixed-Fee form of Contract No. 1. That contract will include an appropriate clause providing for the termination of the contract for the convenience of the Government. All applicable contract clauses required by Federal Laws, Executive Orders, and Army Regulations to be incorporated in such contract are hereby incorporated herein by reference and will be incorporated in the formal contract and in all subcontracts hereunder.

No claim arising under this letter contract or any contract supplementing it may be assigned to any person or persons.

Pending the execution of such formal contract, each subcontract, orders for materials, equipment, other expenditures, and any commitment made in furtherance of the performance of this letter contract, entered into by you for a sum in excess of \$2,000 shall be subject to the written approval of the Contracting Officer.

Upon execution of the formal contract, advance payments in an amount of not less than 30 percent of the above estimated cost will be made to you in the United States of America, in accordance with regulations and directives of the War Department.

Upon the termination of the formal contract, title and possession to all physical property acquired thereunder, such as drilling rigs, materials and equipment, as may be extant, will be delivered to you in its then condition; provided, that the

Government has been reimbursed in oil deliveries for all expenses and costs incurred hereunder, and provided, further, that if the Government has not been so reimbursed and the Government and you agree on a price at which you purchase such physical property, the amount credited to you under Item III and (c) shall be applied on such purchase price and if said amounts are in excess of such purchase price, such excess shall be paid to you or if such physical property is not purchased by you, then the amount standing to your credit under said Item III and (c) shall be paid to you.

Funds for carrying out this construction work have been appropriated and are now available for use of the War Department under the following procurement authority: Eng 30729 P 430-99 A-0905-23

In the event the Government is unable to negotiate with you a satisfactory contract to supplement this letter contract prior to June 30, 1942, this letter contract will terminate and the Government will pay you in full settlement thereof a sum equal to all costs incurred by you in connection with the performance of this letter contract, plus such other sums as have actually been expended by you, in good faith, in settlement of obligations, commitments, and claims which you may theretofore have incurred, but in any event such payments shall not exceed the sum of \$300,000 Canadian currency. Upon such payments title to all materials, supplies, and equipment procured by you in the performance of this contract shall vest in the Government.

For the original signing of this letter contract the term "Contracting Officer" as used herein shall be deemed to include the Contracting Officer in the Office of the Chief of Engineers appointed for that purpose by the Chief of Engineers. For all other purposes, the term "Contracting Officer" shall mean the Officer appointed as such Contracting Officer by the Chief of Engineers, the successor, or duly authorized representative.

This letter contract shall be subject to the approval of the Secretary of War and shall not be binding unless so approved.

If the foregoing is acceptable to you, it is desired that you so indicate hereon and on the inclosed two copies of this letter and return the original and two copies to the Contracting Officer on or prior to May 25, 1942. Such acceptance will constitute this order a contract.

Very truly yours,

THE UNITED STATES OF AMERICA,
By MARTIN R. GLENN,
Captain, J. A. G. D., Contracting Officer.

Accepted May -----, 1942.

IMPERIAL OIL LIMITED,
By -----
Toronto, Canada.

This letter contract is authorized by the following laws: Act of July 2, 1940 (Public Law 703, 76th Congress), as amended by the Act approved June 30, 1941 (Public Law 139, 77th Congress); Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354, 77th Congress), and Executive Order No. 9001, dated December 27, 1941.

EXHIBIT No. 1146-A

Allotment Eng 30403 P 430-99
A-0905-23.

Supplemental Agreement No. 1.
Contract No. W-412-Eng-52.
Negotiated. T. W.

SUPPLEMENTAL AGREEMENT

This Supplemental Agreement entered into this 24th day of November 1942 by and between the UNITED STATES OF AMERICA, hereinafter called the Government, represented by the Contracting Officer executing this agreement, and IMPERIAL OIL, LIMITED, a corporation organized and existing under the laws of the Dominion of Canada, and having its principal office at Toronto, Ontario, hereinafter called the Contractor,

WITNESSETH THAT:

WHEREAS, On the 1st day of May 1942 the parties hereto entered into Contract No. W-412-Eng-52, for the drilling of not less than nine (9) additional wells in

locations within the Norman area, and, if possible, as many more wells as might be necessary to furnish a production of approximately three thousand (3,000) barrels of crude oil per day, and

WHEREAS, the objective of Contract No. W-412-Eng-52 now appears to be reasonably sure of attainment, and

WHEREAS, the Government now desires to increase the proposed production of crude oil from approximately three thousand (3,000) barrels per day to approximately twenty thousand (20,000) barrels per day, and

WHEREAS, It is found advantageous and in the best interests of the United States to modify said contract for the following reason: In order to produce crude petroleum in the Mackenzie River District for utilization in Alaska and other places, Contract No. W-412-Eng-52 is hereby modified in the following particulars, and in the following particulars only:

1. The description of project described under paragraph 1, Article I, *Statement of Work*, is hereby modified to include the following items of work:

(a) The proposed production of crude oil is increased from approximately three thousand (3,000) barrels per day to approximately twenty thousand (20,000) barrels per day. The area of operations is extended to that area which is bounded on the north by the Arctic Ocean, on the east by the 112th meridian, on the south by the 60th parallel, and on the west by the Continental Divide, which area is hereinafter referred to as the Mackenzie River District.

(b) To organize, direct, and supervise the geological and geophysical exploration of the Mackenzie River District in such areas of said District, as the Contractor deems worthy of investigation, and as approved by the Contracting Officer, with a view to locating drilling sites for both the discovery and production of petroleum, including the areas of Seepage Lake, Jungle Ridge, Hoosier Ridge, Rainbow Arch, Carcajou Ridge, Raider Island, and such additional areas as may be necessary to carry out the mission for discovery of petroleum in sufficient quantities to produce twenty thousand (20,000) barrels of petroleum per day.

(c) To drill the necessary oil wells, both discovery and production, with the assistance of the United States and its agencies, contractors, and engineers, including personnel of the U. S. Army at locations approved by the Contracting Officer for the discovery of petroleum in sufficient quantities to produce Twenty Thousand (20,000) barrels of petroleum per day, and to construct the necessary field tanks, collecting pipe line, and other facilities and appurtenances thereto as may be necessary for the collection and storage of petroleum produced. The Government shall be responsible for the transportation of all crude oil to the Government's Terminal Tanks from field tanks situated outside of the Normal Wells field.

(d) Contractor will operate dehydration plants and appurtenances to be constructed in the Mackenzie River District when and as directed by the Contracting Officer.

(e) The Government will purchase and deliver to the respective locations, where the work and services of the Contractor are to be performed, the drilling rigs, tank steel, casing and other materials, tools, equipment, and supplies necessary for the expeditious prosecution of the Contractor's work hereunder.

2. The Contractor will submit for approval a schedule of operations including a schedule of movement of personnel, materials, supplies and equipment as to ingress and egress of the site of the work from the regulating station at Edmonton, Alberta, and from the railheads at Waterways, Alberta, and Peace River, Alberta, and the approved schedule shall govern all parties and agencies concerned.

3. The date of termination of work and services described in paragraph 1 above, is December 31, 1943

4. The estimated cost of the additional work to be performed under this Supplemental Agreement is Three Million Dollars (\$3,000,000), payable in Canadian currency, exclusive of the Contractor's fee.

It is expressly understood, however, that neither the Government nor the Contractor guarantees the correctness of the above-mentioned estimate. The estimated cost set forth above is based on data now available and agreed to by both the Government and the Contractor, copy of which estimate is on file in the office of the Contracting Officer.

5. In consideration of his undertaking the work described in subparagraph (a) of Paragraph 1 of this Supplemental Agreement, and insofar as is reasonably possible to complete the work ready for utilization by the Government on or before December 31, 1943, the Contractor shall receive the following:

a. An additional fixed-fee in the amount of One Dollar (\$1.00), which will constitute complete compensation for the Contractor's work and services under this Supplemental Agreement, including the services of the resident partners, or corporation officers and including profits (but not including such profit as is reserved to the Contractor under Article V, Section 1.f of Contract No. W-412-Eng-52) and all general overhead expenses.

b. Reimbursement for expenditures as provided in Articles II and VI of Contract No. W-412-Eng-52, and

c. Rental shall be paid to the Contractor for equipment in sound and workable condition owned and furnished by him for the proper and economical prosecution of the work at rental rates prescribed by the Contracting Officer.

Except as otherwise specified herein, rental shall begin on the date of delivery of the construction plant to a common carrier for shipment to the site of the work, as evidenced by bill of lading or other satisfactory evidence covering such shipment. In the event the construction plant is conveyed by the Contractor, the rental shall start at the time transportation to the site begins; however, the rental paid shall not exceed that for the equivalent time of shipment by common carrier.

If such construction plant is not in sound and workable condition, to the satisfaction of the Contracting Officer, when delivered at the site of the work, the rental period therefor shall not begin until the construction plant shall have been placed in sound and workable condition at the expense of the Contractor, and rental therefor shall not be paid for any prior period.

If such construction plant cannot be placed in sound and workable condition within reasonable time to the satisfaction of the Contracting Officer, no transportation charges for the shipment thereof, to or from the site of the work, shall be paid.

Rental for time consumed for repairs, in excess of the time normally required for such repairs as determined by the Contracting Officer, shall be deducted from the rental in the amount of one-thirtieth of the monthly rental rate for each day determined to be in excess. When in the opinion of the Contracting Officer the amount of repairs or maintenance is excessive, a deduction shall be made from the rental.

The payment of rental shall cease on a date to be established in a written notice by the Contracting Officer to the Contractor, that the Construction plant is no longer required. The date of release thus established shall include an allowance for the time necessary for final repairs, dismantling, and loading for shipment.

6. All provisions of Contract No. W-412-Eng-52, dated May 1, 1942, are in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this contract as of the day and year first above written:

THE UNITED STATES OF AMERICA,
By THEODORE WYMAN, Jr.,
Colonel, Corps of Engineers,
Contracting Officer.

Contractor:
IMPERIAL OIL LIMITED,
By R. V. LESUEUR, Vice President.
A. M. SIMPSON, Assistant Secretary.

Witnesses as to signature of Contractor:

J. K. OLDFIELD,
56 Church St., Toronto.
T. F. EGERTON,
56 Church St., Toronto.

CERTIFICATION

I, John Alfred New, do hereby certify that I am a duly qualified Assistant Secretary of the Corporation named herein as Contractor; that R. V. LeSueur, who signed this contract on behalf of the Contractor, was then a Vice President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of Imperial Oil Limited this 25th day of January, 1943.

J. A. NEW, Assistant Secretary.

EXHIBIT No. 1146-B

Allotment No.
8 30403 P 430-99 A-0905-24

Contract No. W-412-Eng-52
Supplemental Agreement No. 2
Negotiated: R. W. L.

SUPPLEMENTAL AGREEMENT

To Cost-Plus-A-Fixed-Fee Contract No. W-412-Eng-52, dated 1 May 1942 for drilling and operating oil wells, including purchase of oil and other petroleum products by government, Dominion of Canada.

Contractor: Imperial Oil Limited, 56 Church Street, Toronto (2), Ontario, Canada.

Estimated Cost: Original, \$2,000,000 (Canadian Currency). Supplemental, No Change.

Fixed-Fee: Original, \$1.00. Supplemental, No Change.

Supplemental Agreement For: Amendment to clarify intention of parties.

Payment: To be paid by Finance Officer, U. S. Army, Edmonton, Alberta, Canada.

This Supplemental Agreement is authorized by Title II of the First War Powers Act, 1941, Act of December 18, 1941 (Public Law 354, 77th Congress), and Executive Order No. 9001, dated 27 December 1941.

THIS SUPPLEMENTAL AGREEMENT, entered into this 15th day of July 1943, by and between the United States of America (hereinafter referred to as the "Government," represented by the Contracting Officer executing this Supplemental Agreement, and Imperial Oil Limited, 56 Church Street, Toronto (2), Ontario (hereinafter referred to as the Contractor):

WITNESSETH THAT:

WHEREAS there is now in full force and effect between the parties hereto a certain contract providing for certain services in connection with drilling and operating oil wells, including purchase of oil and other petroleum products by Government, in the Dominion of Canada, bearing date of 1 May 1942, and being identified as Contract No. W-412-Eng-52 (hereinafter referred to as the "principal contract"); and

WHEREAS on the 24th day of November 1942 the parties hereto entered into Supplemental Agreement No. 1 to said principal contract modifying said contract in order to produce crude petroleum in the MacKenzie River District for utilization in Alaska and other places; and

WHEREAS said principal contract provides, among other things, in Section 5 of Article III that prior to final payment, the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of the contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein; and

WHEREAS said contract provision above mentioned was designed and incorporated in said principal contract for the purpose of enabling the Contractor to apprise the Government of anticipated claims and to enable the Government to close up records and paper work in connection with such contract, except for those items which were excepted from the operation of the release, and to protect the Government's interests to the extent of matters not excepted by such release; and

WHEREAS said provision was in no way intended to become operative as a bar to making payment to the Contractor for items otherwise reimbursable except for the provisions of such release; and

WHEREAS at the time when final payment might otherwise appropriately be made, third parties may have asserted claims against the Contractor which are not susceptible of being set forth in the release in stated amounts; and at that time it will be impossible for the Contractor to anticipate the amount and character of claims, including claims for wages, overtime or salaries alleged to be due employees by virtue of the provisions of local, State, or Federal laws or employment agreements; and

WHEREAS it is desired to clarify said principal contract so as to more clearly set forth the understanding of the parties thereto; and

WHEREAS the Secretary of War is authorized by the First War Powers Act, 1941, and Executive Order No. 9001, within the limits of the amounts appropriated therefor, to enter into amendments or modifications of contracts, and by agreement to settle claims under contract, whenever in his judgment the prosecution of the War is thereby facilitated; and

WHEREAS it has been determined by the Secretary of War that in his judgment the prosecution of the War will be facilitated by the modification of the principal contract as hereinafter set out; and

WHEREAS it is found advantageous and in the best interests of the United States to further modify said contract to provide clarification of intention of parties, and whereas the Government and the Contractor have agreed to such modification upon the terms and conditions hereinafter set forth;

Now, THEREFORE, the parties do hereby mutually agree that said principal contract shall be, and the same is hereby, amended in the following manner:

Article III, Section 5: Delete the last sentence and insert in lieu thereof the following:

"1. Prior to final payment and as a condition thereof the Contractor shall furnish the Government with a release of all claims against the Government arising under and by virtue of this contract, other than (a) such claims, if any, as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein, or in estimated amounts where the amounts are not susceptible of exact statement, and (b) any claim based upon responsibility of the Contractor to third parties arising out of the performance of this contract not known to the Contractor at the time of furnishing the release.

"2. Even though the existence or amount thereof shall not be determined until after the furnishing of such release as is described next above, reimbursement to be made for payments made by the Contractor shall include, along with wages and salaries otherwise reimbursable, all additional amounts determined (either by approval of the Contracting Officer or by litigation as hereinafter provided) to be due and payable for overtime compensation and allowances under local, state, or Federal laws in connection with such wages and salaries.

"3. The Contractor shall promptly notify the Contracting Officer of any claims of the type described in paragraph 1 (b) above which are asserted subsequent to the execution of the release.

"4. In the event the Contracting Officer shall determine that the best interests of the Government require that the Contractor initiate or defend litigation in connection with claims of third parties arising out of the performance of this contract, the Contractor will proceed with such litigation in good faith and the costs and expenses of such litigation, including judgments and court costs, allowances rendered or awarded in connection with suits for wages, overtime, or salaries, and reasonable attorneys' fees for private counsel when the Government does not furnish Government counsel, shall be reimbursable under this contract."

All provisions of Contract No. W-412-Eng-52 and Supplemental Agreement No. 1, dated November 24, 1942, except as herein modified, are in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Supplemental Agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA,
By ROBERT W. LOCKRIDGE,
Lt. Col., Corps of Engineers.
Contracting Officer.

Contractor:
IMPERIAL OIL LIMITED,
By R. V. LeSUEUR, *Vice President.*
J. A. NEW, *Assistant Secretary.*

Witnesses as to signature of Contractor:

J. A. NEW,
56 Church St., Toronto, Ont.
V. B. SCHLUETER,
56 Church Street, Toronto, Ont.

I, John Alfred New, certify that I am an Assistant Secretary of the corporation named as Contractor herein; that R. V. LeSueur, who signed this Supplemental Agreement on behalf of the Contractor, was then Vice President of said corporation; that said Supplemental Agreement was duly signed for and on behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

IN WITNESS WHEREOF, I have hereunto affixed my hand and the seal of said corporation this 30th day of July 1943.

[CORPORATE SEAL]

J. A. NEW, *Asst. Secretary.*

EXHIBIT No. 1147

JULY 6, 1943.

SPRMC 611 Alaska (2 June 43)

MEMORANDUM FOR THE CHIEF OF STAFF

Subject: Report on Canol Project.

I. DISCUSSION

1. Pursuant to instructions of Director of the Budget, Mr. Charles D. Curran and Mr. Robert W. Coghill visited and investigated the Canol Project during April 1943. Their report has been transmitted to the Secretary of War by Mr. Wayne Coy of the President's Office, with the request that he comment on the report, discussing any changes in the project since April 1943.

2. The Assistant Chief of Staff, G-4 (Tab A), directed this office to study the report and submit recommendations as to the advisability of—

a. Stopping all construction on the Norman-Whitehorse pipe line and the Whitehorse refinery;

b. Completion of the Norman pipe line and reduction in scope of refinery;

c. Stopping further search for oil in the Norman field.

3. Immediately following the Pearl Harbor attack a study was made to determine the availability of petroleum for the construction of the Alaskan Highway, and an assured local supply of petroleum products for military forces stationed in the Alaskan Theater. This study developed the fact that there was only one known oil field near Alaska, that being at Fort Norman on the Mackenzie River. An intensive study of the geology and production record of the Mackenzie field indicated that additional drilling in the Norman area would develop a supply of crude oil in excess of 3,000 barrels per day. The character of this crude oil has proven to be particularly adaptable for use in northern climates. Sufficient quantities of similar products are not available from the California area. This promising local source of supply with its attendant saving in critical transportation, coupled with urgent military need for petroleum products in Alaska, resulted in the decision to develop the Canol Project. (Tab B).

4. Petroleum products for Alaska and the Aleutian Islands and for War Department installations in northwestern Canada have, in the past, been largely supplied from California production. However, in recent months the declining production in California has forced the War Department to supplement the California supply by shipments from Texas, Louisiana, Oklahoma, and Wyoming to the Pacific area. Studies have been completed and are now before the Army and Navy Petroleum Board for additional refinery facilities in Colombia and Venezuela, primarily to support the deficiency in California production. Hence, any saving of California oil in Alaska is, in effect a saving of transportation from Venezuela to Alaska.

5. Notwithstanding the more favorable strategic situation in the North Pacific area with respect to tanker and dry cargo movements, any amount of oil that can be produced near the Alaskan Theater will relieve to a substantial extent a serious transportation problem in addition to reducing the drain on limited production in California, and will add to the over-all supply of the United Nations. For an estimate of the savings in transportation resulting from newly developed supplies in Alaska see Tab C.

6. If the refinery and crude oil line were abandoned, only \$4,420,000 of economically salvageable materials could be recovered. Evacuation of these materials would cost \$6,454,000. The net loss to the Government would amount to nearly \$50,000,000, whereas only \$38,000,000 need be expended to complete construction (Tab D).

7. Recent estimates made by the Army and Navy Petroleum Board indicate an average daily deficiency of petroleum supply in the continental United States of 746,000 barrels per day in 1944. Any deficit must be reduced through development of sources of supply outside of the United States (Paragraph 2, Inclosure A, J. C. S. 281/1). The Petroleum Administrator for War in a letter to Admiral Leahy under date of 24 June 1943 states that "most of the nation's oil fields are already being produced to capacity." "An adequate supply of petroleum can be supplied only by the discovery of new petroleum resources and by the orderly

drilling of both presently known and newly discovered oil fields" (Paragraph 2, Inclosure B, J. C. S. 312/8). The general situation as it relates to petroleum supply and its tremendous importance to the war effort is such that the Joint Chiefs of Staff on 8 June 1943 agreed that a study should be made by the Chief of Engineers to cover a detailed investigation in consultation with appropriate Government agencies with a view to recommending steps that should be taken to augment petroleum supply through increased drilling operations. This study is to include the desirability of increasing the refinery capacity in the Caribbean Area, Saudi Arabia, and Haifa (J. C. S. 281/1). It is clear that the implications of increased requirements coupled with prospective decreasing sources of petroleum are such that any action that will result in the over-all increase of petroleum products to the United Nations must be vigorously prosecuted.

8. Since 1 April 1943 the following changes have been made in the Canol Project (Map, Tab B) :

a. The deferment of the pipe line and winter road from Fairbanks to Tanana, Alaska. This portion of the work was deferred and not deleted by reason of the fact that it may be included in a railroad-pipe-line project from Fairbanks to Nome, Alaska, if and when the latter is built.

b. Suspension of construction of the winter-road supply route, Peace River, Alberta, to Norman Wells due to scheduled early completion of the project to be served thereby.

c. Deletion of the Houdry process phase of the refinery. This portion of the work deleted by reason of the critical situation surrounding materials necessary for its accomplishment.

9. Consideration has been given to the possible use elsewhere of the material in the Norman-Whitehorse pipe line and the refinery. The physical difficulties surrounding withdrawal of these materials is so great as to render their consideration for these purposes in other theaters impracticable.

10. Additional comments regarding pertinent points in Mr. Curran's report as they relate primarily to the Alcan Highway are contained in Tab E.

II. CONCLUSIONS

a. There is developing a serious shortage in the supply of crude oil in the United States and areas controlled by the United States. As a result of this impending shortage, it has become essential to develop distant fields such as Saudi Arabia, Haifa, Trans-Jordan, and in the Caribbean area.

b. There is a diminishing supply of crude oil in the California area which has been used until recently to supply the Alaskan theater. In view of the known shortage, every effort should be made to find additional sources in territory controlled by the United States.

c. *For the Canol Project.*—(1) The material and equipment in substantial part is on hand in the vicinity of the project.

(2) A substantial expenditure of money and manpower has already been made and construction is well under way.

(3) Returns from this project will be realized from one to two years earlier than from projects now under consideration lying outside the United States in areas which are not controlled by the United States.

(4) The completion of the project will affect material savings in critical transportation facilities.

d. The abandonment of the Canol Project at a time when the United States is prepared to support other developments in areas which it does not control would appear inconsistent and unwise.

III. RECOMMENDATIONS

a. That the pipe line from Fort Norman to Whitehorse be completed.

b. That the Whitehorse refinery be completed as presently planned.

c. That present drilling operations be continued in known structures, within a radius of fifty miles of the Fort Norman field, and that the number of wells to be drilled be determined by the results of the drilling.

BREHON SOMERVELL,
Lieutenant General,
Commanding.

WDGDS 5013

JUNE 30, 1943.

MEMORANDUM FOR THE COMMANDING GENERAL, ARMY SERVICE FORCES

Subject: Report on the Canol Project.

1. Attention is invited to the inclosed Report of Inspection, Northwest Division, U. S. Engineer Department, dated April 1943, by Mr. Charles D. Curran, Principal Budget Examiner, and to the Report on THE CANOL PROJECT by Mr. Robert W. Coghill, Petroleum Consultant, with Exhibits. Inclosed also for your information is an estimate of the situation in Southeast Alaska furnished by Operations Division, W. D. G. S.

2. It is desired that you study the Report and review, with consideration of the strategic situation, the advisability of—

a. Stopping all work on the line from Norman to Whitehorse and the construction of the refinery.

b. The reduction in refinery scope, assuming the line from Norman is constructed.

c. Stopping further search for oil in the Norman field.

3. It is desired that you submit to the Chief of Staff your conclusions and recommendations, with a digest of the data considered by you in connection therewith. It is desired also that you submit your comments on other pertinent points in the Summary of Findings of the Curran Report.

4. Consideration should be given to the possible use elsewhere strategically of the material planned for the pipe line from Norman to Whitehorse and for the refinery.

5. Return of inclosures is desired with your report.

By order of the Secretary of War:

R. G. MOSES,
Brigadier General,
Assistant Chief of Staff, G-4.

Inclosures:

Ltr frm BB 2 Jun 43
to S/W w/2 Incls (Report
of Inspection NW Div. &
The Canol Project w/5 volumes
of exhibits).
Estimate of the Situation
in Southeast Alaska.
G-2 Estimate of the Situation
in Alaska.

CANOL PROJECT

1. After a conference between interested Army agencies and representatives of the Imperial Oil Company of Canada (owners of the Fort Norman Field) it was decided to negotiate a contract with the Imperial Oil Company to drill additional wells on the Fort Norman structure, and if 3,000 barrels or more per day of crude oil were developed, to build a pipe line from Fort Norman to Whitehorse, Y. T., and construct a refinery at Whitehorse, Y. T.

2. Preliminary study indicated that there might exist other geological structures in the Mackenzie River Basin, and several outstanding petroleum geologists were employed to make a survey of the area. This geological survey resulted in the discovery of four additional structures along the Mackenzie River, both north and south of the Norman Wells field.

3. Additional wells were drilled on the Fort Norman structure, and producing wells have been discovered on Goose Island and Bear Island, both of which are apparently on an extension of the Fort Norman structure. The discovery of oil on these two islands increases the possibilities of oil in the immediate area far beyond that anticipated by the owners of the original wells. Potential production today from wells completed exceeds 3,000 barrels, and it is estimated that if a number of these wells are acidized, the production will be increased to at least 4,000 barrels. Geological studies today indicate that some, or perhaps all, of the other structures located will be productive of oil. Present well drilling

operations will be confined to an area within 50 miles of Fort Norman, pending completion of geological survey.

4. After it was determined that 3,000 barrels per day, or more, of crude oil would be available at Fort Norman, an idle refinery located at Corpus Christi, Texas, was purchased, dismantled, and moved to Whitehorse, Y. T., where it is being re-erected. The present plan excludes the addition of the Houdry Catalytic Cracking process producing the maximum of 1,500 barrels of 100 octane gasoline, and will result in the processing of approximately 500 barrels per day of 100 octane gasoline, and the production of motor gasoline, diesel oil, and fuel oil can be regulated according to the needs of the different products. This plan is believed to be the most economical and advantageous operation.

5. The location of the refinery was based on the following considerations:

a. Fairbanks is on the extreme northwest end of the Alcan Highway, and if a refinery were located there it would involve additional pipe lines and additional trucks to effect distribution of petroleum products to the Alcan Highway and military installations thereon.

b. A pipe line from Norman Wells to Fairbanks would be at least 150 miles longer than a line from Norman Wells to Whitehorse. While the line from Norman Wells to Fairbanks has a slight advantage over the other line in that lower passes could be used through the mountains, the advantage would be entirely offset by the greater distance, and by the fact that, as a general proposition, is about 3° farther north, which would result in additional operational difficulties in the winter season, furthermore, the Fort Norman-Fairbanks line would traverse more muskeg country than the Whitehorse line, and the operation of the pipe line in this type of terrain would be extremely difficult.

c. If the refinery were located at Fairbanks, all ocean shipments of oil would have to be transported by rail from Anchorage to Fairbanks over a railroad highly congested with the transportation of other products and materials. To render the same service as the Whitehorse plant, and in order to deliver oil to deep water from the plant, in emergency, it would be necessary to lay a pipe line paralleling the railroad from Anchorage to Fairbanks, a distance of approximately 350 miles.

d. If Anchorage were used as a sea base, it would be difficult, if not impossible, to move petroleum products by barge from Seattle or Prince Rupert to Anchorage, because of the necessity for crossing the open sea between Juneau and Anchorage.

e. Whitehorse is the shortest distance by pipe line to the Fort Norman field.

f. Whitehorse is located approximately midway on the Alcan Highway, and distribution through pipe lines and/or trucks from Whitehorse could be made from Whitehorse with the least expenditure of manpower, trucks, and pipe lines.

g. A pipe line has been constructed between Skagway and Whitehorse, and storage facilities erected at both points. Movements of petroleum products in small vessels and barges can be effected from Seattle or Prince Rupert by the inner route where there is not the danger of transportation in this type of equipment in the open seas.

h. In the event of emergency, the refinery at Whitehorse could deliver petroleum products by pipe line to Skagway, where it would be readily available to the Army or Navy for movement by vessel to any critical point in the North Pacific.

6. A four-inch pipe line was authorized, and is now under construction, between the Fort Norman field and the Whitehorse refinery. This line will have a normal capacity of 3,000 barrels per day which can be increased by the addition of pumping stations or by looping the lines.

7. A four-inch line has been constructed between Skagway, Alaska, and Whitehorse, Y. T. This line is currently used for pumping petroleum products to Whitehorse, brought to Skagway by water. Small distribution lines along the Alcan Highway from Whitehorse, north to Fairbanks and south to Watson Lake are being constructed for the distribution of petroleum products to the various Army installations in that immediate area. This will effect a tremendous saving in motor transportation and relieve heavy motor traffic on the Alaskan Highway.

8. The cost of transporting petroleum products to the Alaska-Aleutian area is tremendous. The distance from Los Angeles to Skagway via the inland waterway is approximately 2,500 miles. The distance from Norman Wells to Whitehorse by pipe line is approximately 500 miles. Assuming that oil could be transported safely by tanker from California to Seattle, and at that point transferred to liquid-carrying barges, or dry-cargo barges, and transported via the inland

waterway to Skagway, the actual cost of transportation would be in excess of \$11.00 per barrel. If petroleum products were distributed from Whitehorse to various points on the Alcan Highway by truck, the total transportation cost from California to points where petroleum products are used would exceed \$20.00 per barrel. In some instances, it has been necessary to transport products by airplane, and that cost has in some instances approximated \$40.00 to \$82.00 per barrel. Cost figures for the movement through the pipe lines is not now available, but obviously will be much lower than the cost of moving by present methods.

9. If additional oil is found on structures referred to in paragraph 5, an increase in the capacity of the pipe line and refinery would be fully justified, as it would result in the shortest possible movement of petroleum products, not only to Army installations in Alaska, but if sufficient additional quantities were available, the oil could be transported through the pipe line from West Alaska, Aleutian Islands, and northern Pacific points, with a great savings in tanker tonnage and time in moving petroleum products to what is still considered a critical area.

Estimated savings on transportation of petroleum projects to Alaskan theater from various supply points

	90,000 barrels (per month)	180,000 barrels (per month)
Los Angeles to Skagway (tanker) $\frac{1}{6}$ = \$6,000, etc.	\$35, 600	\$61, 200
Texas to Skagway (rail and boat)	370, 800	741, 600
Caribbean to Skagway (tanker)	172, 800	345, 600

21 days turn around Los Angeles to Skagway would require two 50,000-barrel tankers.

42 days turn around Caribbean to Los Angeles would require one and one-third 100,000-barrel tankers to Los Angeles and two 50,000-barrel tankers Los Angeles to Skagway.

Figures corrected for pipe line costs Fort Norman to Whitehorse at \$0.50 per barrel.

1. The above tabulation is made on two bases—one, 3,000 barrels per day production; and the other, 6,000 barrels per day production; and the costs of transportation are roughly figured on the bases of 90,000 and 180,000 barrels of products per month.

2. Over one-third of this product is now being shipped from Texas, Oklahoma, and Louisiana, it being necessary to transport this in tank cars and boxcars as O. D. T. directs. The necessity of these rail shipments is caused by the lack of available products in the California area.

3. It will be noted that approximately four tankers will be required in continuous service to transport 90,000 barrels per month. These tankers in this operation will consume 21,000 barrels of fuel oil. To transport 180,000 barrels per month will require eight tankers which will consume 42,000 barrels of fuel oil.

4. The Army's need for this product is considerably in excess of the potential production as noted in this paper and all of the products which it is planned to produce in this project are suitable for military needs.

CONCLUSIONS

a. On the basis of 3,000 barrels per day of assured production from the Norman fields, a savings in the continuous operation of 4 tankers and 21,000 barrels of fuel oil per month is effected by the Canol Project.

b. On the basis of a probable potential supply of 6,000 barrels per day, a savings in the continuous useage of 8 tankers and 42,000 barrels of fuel oil per month will be effected.

INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM 9905

Summary of estimate prepared by the Chief of Engineers for the abandonment of "CANOL No. 1" (Well drilling at Norman Wells, the Whitehorse-Norman Pipe line and appurtenances)

COSTS

Total estimated cost if carried to completion (Houdry process eliminated)-----	\$88, 378, 000 (100%)
Estimated expenditure to 1 August 1943-----	\$47, 874, 000
Less: Recoverable amount of materials, etc., if stopped approx-----	4, 420, 000
Net expenditure-----	43, 454, 000
Demobilization and evacuation of personnel and salvageable materials & equipment-----	6, 454, 000
Total estimated cost if abandoned as of 1 August 1943-----	49, 908, 000 (56%)
Net saving by abandonment-----	38, 470, 000 (44%)

Status of materials and equipment July 1, 1943

	Norman-Whitehorse pipe-line		Whitehorse refinery		
	Pipe	Pumps & Equipt.	Stage I	Stage II	Stage III
	Miles	Percent	Tons	Tons	
Work in place-----	60				Houdry.
En route (outside U. S.)-----	480	75	16, 000	900	Process.
Not shipped from U. S.-----	140	25	500	8, 100	Eliminated.
Total-----	680	100	16, 500	9, 000	

1 6,400 tons at site.

COMMENTS ON OTHER PERTINENT POINTS ON THE SUMMARY OF FINDINGS OF THE CURRAN REPORT

I. EXTRACT FROM SUMMARY OF FINDINGS

1. Transportation.

The major problem in the area is one of transportation.

The fact that the parts of the network fall under various controls—O. D. T., A. T. S., A. T. C., N. W. S. C., N. W. Division, and A. D. G.—tends to make difficult any planning by a using agency.

The Northwest Division, U. S. E. D., was not as fully apprised as it should have been of capacities of the various components of the network. Likewise it has no check on the claim that contractors' schedules were based on transportation capacities.

* * * * *

2. Alcan Project.

* * * * *

Since the agreement between this government and Canada provides for construction of the final type road by the Public Roads Administration, that organization should be kept on the job if possible. However, if, within the next few months, the Public Roads Administration does not push the job to meet the scheduled completion date, abandon its business-as-usual attitude, and serve properly as an agent of the Military Establishment, it should be removed from the job and the work should be turned over to the Army Engineer organization in toto.

Comment.

1. The possible existence of any transportation difficulties which have or may adversely affect construction activities in the area, together with possible deficiencies in the functioning of the Public Roads Administration as an agent of the War Department in construction of the Alcan Project are presently being investigated. Remedial action, if indicated, will be taken upon completion of these investigations.

II. EXTRACT FROM SUMMARY OF FINDINGS

4. *Policies.*

The entire program for the Canadian Northwest should be reviewed by the War Department in view of the current strategic situation.

Memorandum of March 31, 1943 to Chief of Engineers from the Director, Requirements Division, A. S. F., calls for a review going part way in this direction. That memorandum establishes priorities for fourteen projects, calls for the elimination or deferment of such as are no longer required, the early completion of the first five, the early completion of the sixth without interference with the first five, and the retarding of the remaining eight. Should war projects be carried forward in a "retarded" status?

If the projects are necessary for the war, they should be prosecuted vigorously to the stage of completion and development necessary for the war. Beyond this no development should be made at this time.

If the projects are not necessary to the war their construction should be immediately suspended.

Whether or not these projects are necessary to the war is entirely a question of logistics and strategy which should be determined by the general staff.

Comment.

1. The entire construction program within the area of the Northwest Service Command has recently been reviewed in the light of the current strategic situation.

2. The Alcan Highway originally was envisaged as a major supply artery to Alaska. More recently an operating plan based on the capabilities of two (2) Quartermaster Regiments (reinforced) was considered but, in view of further favorable changes in the strategic situation, was finally reduced to a one-regiment plan which provided for the supply of Northwest Service Command and Air Transport Command installations along the Highway and for the maintenance of this route as an emergency supply line capable of being quickly expanded if the need arises.

3. The review further resulted, with the approval of War Department General Staff, in the elimination of certain projects and the retardation of certain others to an extent permitting those projects most essential to the War Effort to be expedited to completion without draining additional manpower and construction equipment from the United States.

EXHIBIT No. 1148 appears in text on p. 9678

EXHIBIT No. 1149

MARCH 29, 1943.

MEMORANDUM FOR THE DEPUTY CHIEF OF STAFF

Subject: Troop Requirements of Northwest Service Command.

I. DISCUSSION

a. Memorandum for the Deputy Chief of Staff SPOPG 370.5 March 24, Subject: Troop Requirements for Northwest Service Command (Tab. A).

b. Memorandum for the Chief of Staff OPD 320.2 ADC (2-22-43) March 1, 1943, Subject: Requirements for the Northwest Service Command (Tab. B).

c. Letter from the Chief of Staff to the Commanding General, Army Service Forces March 10, same subject (Tab. C).

2. In reference 1 *b* (Concurred in by the Commanding General, Army Service Forces) it is indicated that the Engineer Troops on the Alcan Highway will reconstruct the temporary bridges and repair portions of the highway damaged by the spring break-up. Furthermore, it was indicated that these troops would be released within six months.

3. Reference 1 *c* was not specific concerning the release of troops, directing "the release as soon as possible of all troops and material not required for the revised program."

4. In reference 1 *a* it is indicated that the 97th, 340th, and 341st Engrs. (CS) and the 35th Engrs. (C) originally assigned to the construction of the Alcan Highway will not be released until after September 15, which is not consonant with Paragraph 2 above nor with an informal agreement with the Commanding General, Northwest Service Command, February 24.

5. Subsequent to the date of reference in Paragraph 1, the attention of this Division was directed to the report of the Chief of Engineers dated January 31 wherein—

a. The cost of the crude-oil pipe line from Norman Wells to Whitehorse and the refinery at Whitehorse was estimated at \$57,711,000 involving 178,000 tons of material (of this amount, the value and weight of the equipment in place was set at \$9,191,000 and 44,410 tons respectively).

b. The final cost of the Alcan Highway was estimated at \$133,571,000 (of which \$34,400,000 was in place).

6. The total output of the Norman Wells field is estimated at 3,000 barrels per day for a maximum of two years. This amount does not appear sufficient to justify the expenditure of manpower and materials indicated in 5 *a* as an equal amount of gasoline could be transported from the United States in ten trips per year of a tanker and pumped through the existing pipe line from Skagway to Whitehorse.

[Handwritten:] This was 3/29/43.

7. The contemplated standard of construction for the Alcan Highway, as reflected by cost estimate in Paragraph 5 *b* can possibly be reduced to effect a saving in manpower and critical materials.

8. The estimates in Paragraph 5 appear to be excessive and warrant further study of these projects.

[Handwritten:] This is ———.

9. The need exists for trained and hardened General Service and Combat Engineer Regiments in active theaters. ;

10. Conclusions—*a.* The need for Engineer troops in active theaters is such as to justify the release from the Northwest Service Command of the engineer troops listed in Paragraph 4 at the earliest possible date consistent with completion of the duties outlined in Paragraph 2.

b. Further curtailment can be made of projects contemplated in this area on the basis of lack of immediate benefit to the war effort.

II. ACTION RECOMMENDED

That the attached memorandum (Tab D) for the Commanding General, Army Service Forces, requesting expedited release of the Engineer Troops and the submission of a revised list of projects to be carried out by, or under the direction of, the Commanding General, Northwest Service Command, listing the requirements for troops, civilian manpower and materials be signed and dispatched.

III. CONCURRENCE

A. C. of S., G-4 ().

THOS. T. HANDY,
Major General,
Assistant Chief of Staff.

4 Incls.

- #1 Memo for Deputy C/S 3-24-43 (Tab. A).
- #2 Memo for C/S OPD 320.2 ADC (2-22-43) 3-1-43 (Tab. B).
- #3 Ltr frn C/S to CG, ASF 3-1-43 (Tab. C).
- #4 Memo for sig. DC/S (Tab. D).

EXHIBIT No. 1150

WAR DEPARTMENT,
Washington, D. C., January 4, 1944.

Mr. HUGH FULTON,
Chief Counsel, Truman Committee,
449 Senate Office Building, Washington, D. C.

DEAR MR. FULTON: When General Somervell testified before the Committee he was asked certain questions which he agreed to answer later. I supply you with the answers herewith.

(a) At Page 978 Senator Brewster inquired as to when negotiations with Canada were opened with respect to a new arrangement.

During the week of November 14, 1943, the War Department took up with the State Department the matter of opening such negotiations. On the morning of November 22, 1943, the State Department communicated with Canadian authorities and a meeting was arranged in Ottawa for December 2.

(b) Senator Ferguson asked as to modifications of the Imperial Oil contract as bearing upon the right to renegotiate. The matter was later covered in testimony given by Mr. Amberg.

There have been two modifications or supplements to the Imperial Oil Contract, the first contained provisions with respect to development of 20,000 barrels and the second contained a provision for release of contingent claims similar to that being placed in other contracts. The Committee has copies of the original and both supplements, as well as an explanation from us with respect to the second supplement.

(c) At page 980 Senator Kilgore asked whether it was about January 1942 (when General Somervell heard of the oil deposit in Canada) that Mr. Ickes took up with the War Department the proposition to spend money for exploration in Alaska.

It was not until later that PAW made suggestions in this regard. In August 1942 Mr. Terry Duce brought to the attention of General Pyron a geological report on Alaska made by private oil company, and Mr. Duce wrote to General Pyron on the subject in October but made no definite recommendation. On November 16, 1942, after further discussions between General Pyron and Mr. Duce, General Somervell indicated that an effort be made to interest the Navy in a joint exploration near Wide Bay, Alaska. The Secretary of War communicated with the Secretary of the Navy on the subject and, after some correspondence, the Navy indicated its unwillingness to join in the exploration but was willing that the exploration be carried on by others.

In the spring of 1943, PAW asked the Bureau of the Budget for money to drill in this region but in April 1943 was refused. On May 25, 1943, P. A. W. asked the War Department for money with which to drill. Negotiations, however, did not reach a conclusion at that time. Negotiations were renewed in September 1943 and arrangements for oil explorations in Alaska have been made between the Secretary of War and the Secretary of the Interior to be paid for with War Department funds.

(d) At page 984 Senator Kilgore asked the mileage of access road that had to be built to get the pipe in, including winter routes and barge lines and everything else.

The total mileage of winter roads constructed in connection with the Canol Project is 1,129 miles. This total consists of 900 miles from Third Battle to Norman Wells, 187 miles from Ft. Smith to a junction with the Peace River-Norman Wells winter road near Hay River, and 42 miles from Ft. Simpson to connect with the Peace River-Norman Wells road at Mile 609. Third Battle is about 90 miles north of Peace River and is at the end of the Provincial road, at which point the District Engineers started building the winter road to Norman Wells. The first 200 miles of road from Third Battle north was over the old Yellow Knife transportation trail, but this was entirely rebuilt. At various times it has been stated to the Committee that here was a winter road from Ft. Simpson to Ft. Nelson. Actually one convoy was manhandled across country between these points by troops but the operation was abandoned. These winter roads were all in connection with the Waterways system.

Total mileage of access road constructed in connection with the Canol Project is as follows: Canol No 1 totals 517 miles between Canol Camp and Johnsons Crossing, located about 80 miles southwest of Whitehorse. This total is derived from 497 miles of horizontal pipe distance between Canol Camp and Johnsons Crossing, plus 2% additional for slope distance, plus ten miles additional for

INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM 9909

difference between pipe line and road. In addition to the above, twenty miles of allweather access road have been constructed for the Noble Drilling Company, and sixty miles of winter road have been constructed for the Noble Drilling Company.

(e) At pages 987 and 997 questions were asked as to tonnage by you and Senator Kilgore. The questions related to materials, equipment, and supplies brought up in various ways.

Listed below are estimates of tonnage for all Canol work:

CANOL NO. 1 (INCLUDING REFINERY)

	Total tons	Via highway	Via ocean	Via river
Refinery:				
Consumables.....	1,500	1,200	300	-----
Equipment.....	1,800	-----	1,800	-----
Materials.....	17,570	2,125	15,445	-----
Total.....	20,870	3,325	17,545	-----
Canol 1 east:				
Consumables.....	4,850	-----	-----	4,850
Equipment.....	5,550	-----	-----	5,550
Materials.....	19,190	-----	-----	19,190
Total.....	29,590	-----	-----	29,590
Canol 1 west:				
Consumables.....	4,000	2,180	1,820	-----
Equipment.....	3,860	300	3,560	-----
Materials.....	23,872	6,100	17,772	-----
Total.....	31,732	8,580	23,152	-----
Oil production:				
Consumables.....	5,730	-----	-----	5,730
Equipment.....	1,173	-----	-----	1,173
Materials.....	4,097	-----	-----	4,097
Total.....	11,000	-----	-----	11,000

NOTE.—Consumables include Diesel and motor gasoline, food, etc. Equipment indicates heavy construction equipment. Materials include all other items entering into construction.

CANOL NO. 2

Skagway and pipe line:				
Consumables.....	2,400	-----	2,400	-----
Equipment.....	1,300	-----	1,300	-----
Materials.....	14,400	-----	14,400	-----
Total.....	18,100	-----	18,100	-----
Prince Rupert:				
Consumables.....	700	-----	-----	1700
Equipment.....	200	-----	-----	1200
Materials.....	7,000	-----	-----	17,000
Total.....	7,900	-----	-----	17,900

CANOL NO. 3

Consumables.....	3,000	190	2,810	-----
Equipment.....	890	-----	890	-----
Materials.....	5,110	445	4,665	-----
Total.....	9,000	635	8,365	-----

CANOL NO. 4

Consumables.....	3,000	2,075	925	-----
Equipment.....	1,190	-----	1,190	-----
Materials.....	32,842	6,760	26,082	-----
Total.....	37,032	8,835	28,197	-----

¹ Via rail only.

9910 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

CANOL MISCELLANEOUS

(Construction of barges and tugs) total.....	31, 175			131, 175
Grand total by routes.....	196, 399	21, 375	95, 359	179, 665
Grand totals all Canol work:				
Consumables.....	25, 180			
Equipment.....	15, 963			
Materials.....	155, 256			
Total.....	196, 399			

¹ Via rail only.

NOTE.—5,000 tons in addition to above stock piled at Fort Smith and Waterways will not be used. Consists largely of gasoline and Diesel fuel.

(f) At page 990 Senator Kilgore requested figures on the amount of new steel purchased for the refinery.

The 2,730 tons of steel in the refinery and the Hamilton Power Plant were used steel. The additions to the refinery, including Stage 2, were new steel, a total of 7,780 tons.

Sincerely yours,

JULIUS H. AMBERG,
Special Assistant to the Secretary of War.

[Extract from report by Imperial Oil Limited]

"IMPERIAL OIL LIMITED—CANOL PROJECT REPORT ON OPERATIONS PREPARED FOR BRIG. GEN. L. D. WORSHAM AS OF NOV. 30, 1943"

Summary of Norman Wells refinery operations for the period from commencement of operations, March 1, 1943, in accordance with the terms of Contract No. W-412-eng-52, to Oct. 31, 1943

	Crude oil charged to unit	
	Barrels	Imperial gallons
Crude oil processed:		
For account of U. S. Government.....	137, 126	4, 799, 408
For account of Imperial Oil, Ltd.....	14, 704	514, 640
Total crude oil.....	151, 830	5, 314, 048

Crude oil production Norman Wells field, since inception to Oct. 31, 1943

[Barrels]

Period	Imperial wells		Project wells		Total production
	Period	Cumulative	Period	Cumulative	
	Shut in	Shut in			
1920-32.....					
1932.....	1, 022	1, 022			1, 022
1933.....	4, 608	5, 630			5, 630
1934.....	4, 685	10, 315			10, 315
1935.....	5, 053	15, 368			15, 368
1936.....	5, 399	20, 767			20, 767
1937.....	11, 371	32, 138			32, 138
1938.....	27, 696	59, 834			59, 834
1939.....	18, 155	77, 989			77, 989
1940.....	17, 839	95, 828			95, 828
1941.....	23, 067	118, 895			118, 895
1942—Jan. 1 to June 30 ²	9, 820	128, 715			128, 715
1942—July 1 to Dec. 31 ²	18, 564	147, 279	53, 940	53, 940	201, 219
1943—Jan. 1 to Nov. 1 ²	62, 202	209, 481	99, 720	153, 660	363, 141

¹ Annual average 11,889 barrels per year.

² Effort made in latter part of 1912 to produce for use of U. S. Government.

EXHIBIT No. 1151

NAVY DEPARTMENT,
OFFICE OF THE CHIEF OF NAVAL OPERATIONS,
Washington, December 18, 1943.

Mr. HUGH A. FULTON,
*Special Committee Investigating the National Defense Program,
United States Senate, Washington, D. C.*

My DEAR MR. FULTON: In connection with your inquiry as to whether the Navy ever was asked for its opinion relative to, or was asked to participate in, the so-called Canol Project, a search has been made of the Navy's files, but we can find no communications indicating such an inquiry.

You likewise asked whether any oral inquiry on this subject had been made of the Navy Department. All of the cognizant officers and officials of the Department have been questioned and so far as we can develop the answer is no.

The Joint Army-Navy Petroleum Board did take up some phases of the question in October of 1943, apparently in getting some information for the Joint Chiefs of Staff. Trusting that this will answer your inquiry, I am,

Cordially yours,

JOHN A. KENNEDY,
Captain, United States Naval Reserve.

SUPPLEMENTAL DATA

The following letter is included herewith in connection with testimony, supra, page 9367.

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington, D. C., November 6, 1943.

MR. RUDOLPH HALLEY,

*Executive Assistant to Chief Counsel, Truman Committee,
Room 317 Senate Office Building, Washington, D. C.*

DEAR MR. HALLEY: In connection with information requested by the Subcommittee at the recent Canol hearings, the Office of the Chief of Engineers has advised as follows:

(a) The cost of dry holes drilled in connection with the Canol Projects by Noble Drilling Company averaged \$60 per foot.

(b) Imperial Oil, Ltd., has drilled (i) 20 wells in the discovery area, averaging 1,446 feet each, at a cost of \$25 per foot; (ii) 5 wells on Bear and Goose Island, averaging 2,177 feet each, at a cost of \$30 per foot, and (iii) 2 wells at Hoosier Ridge, averaging 2,687 feet each, at a cost of \$57 per foot. Noble Drilling Co. has drilled 2 wells at Bluefish (15 to 25 miles south of Camp Canol), averaging 3,330 feet each, at a cost of \$60 per foot. The above costs per foot include field labor, materials, service and overhead, as well as considerable organization and initial costs which will not be recurring and accordingly the future cost per foot for drilling operations should be reduced.

The remaining material requested by the Subcommittee will be forthcoming shortly, I believe.

Sincerely yours,

HERBERT A. FRIEDLICH,
Lieutenant Colonel, J. A. G. D.,
Assistant.

The following letter is included herewith in connection with testimony, supra, page 9602.

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington, D. C., November 24, 1943.

HON. HARRY S. TRUMAN,

*Chairman, Senate Committee Investigating the
National Defense Program,
Senate Office Building, Washington, D. C.*

DEAR SENATOR TRUMAN: At the committee's hearings on Canol yesterday, I stated that the Joint Chiefs of Staff had determined that the completion and operation of the Canol project is necessary to the war effort. On thinking the matter over, I concluded that perhaps the committee would be interested in the manner in which the project had come before the Joint Chiefs of Staff.

In September the Joint Chiefs of Staff approved the setting up of a Joint Production Survey Committee, composed of Army and Navy representatives, to review various production and related programs with a view to recommending to the Joint Chiefs of Staff the continuation, abandonment, or curtailing of respective projects in the light of changing military needs. The Joint Production Survey Committee is an agency of the Joint Chiefs of Staff. One of the projects which the committee reviewed was Canol. The War Department had no part in the inception of the review, the recommendations of the committee, or the conclusions of the Joint Chiefs of Staff.

The committee held hearings at which various witnesses testified. I believe that representatives of Petroleum Administration for War, among others, expressed their views and opinions at these hearings.

After the hearings were concluded, the Joint Production Survey Committee reported that the completion and operation of the Canol project is necessary to the war effort and recommended that the project be completed and operated as soon as practicable and that consideration be given to exploration and development for a full recovery of the predicted reserves in the Norman field. On October 26, 1943, the Joint Chiefs of Staff approved the report and recommendations of the committee.

I shall appreciate it if you will make this letter a part of the Canol record. I am sending a copy of this letter to each of the other members of the committee.

Sincerely yours,

ROBERT P. PATTERSON,
Under Secretary of War.

The following letter is included herewith in connection with testimony, supra, pp. 9544-9545.

PETROLEUM ADMINISTRATION FOR WAR,
Washington, D. C., December 6, 1943.

HON. HARRY S. TRUMAN,
United States Senate.

MY DEAR SENATOR TRUMAN: In response to the request of Senator Kilgore at the hearing of your committee on the Canol project on November 22, we have undertaken to estimate the cost of transportation to and the storing of petroleum products at Skagway, Alaska, and Whitehorse, Canada, as an alternative to the construction of the crude-oil pipe line from Norman Wells and the refinery at Whitehorse.

We estimate that, under conditions which we believe would apply to this operation, the following cash expenditure would probably be incurred during the course of a 2-year operating period:

Capital expenditure for tank construction (500,000 barrel)-----	\$1, 550, 000
Tanker transportation costs on products, Los Angeles-Skagway----	627, 020
Pipe-line transportation of gasoline, Skagway-Whitehorse-----	270, 000
Handling charges -----	154, 800
Total-----	2, 601, 820

In any estimation of the capital investment involved in the erection of the necessary storage tanks, or the cost per barrel for handling the products, certain fundamental factors must be considered:

1. The volume and type of product which will be stored.
 2. The daily and yearly rate of consumption of the product in the area to be served by the storage in question.
 3. The amount of stock which will be carried in terms of the daily or monthly consumption rate.
 4. The number and size of the tanks which will be constructed.
 5. The cost of constructing these tanks, complete with all fittings, and connections, and surrounded by the necessary fire walls for fire protection.
 6. The number of years it is assumed that these tanks will be in service.
- In estimating the cost of transporting petroleum products from California to Skagway and Whitehorse and storing them at these points, we have made the following assumptions which we believe would approximate the actual operating conditions:

1. Storage tanks would be erected at both Skagway and Whitehorse, of a sufficient capacity to permit the unloading of products in tanker lots, the motor gasoline and aviation to be transported to Whitehorse for storage and ultimate consumption along the Alcan Highway and at the flying fields of that area. The fuel oil would be stored at Skagway for use as needed in the coastal area.
2. Storage would be erected in a sufficient volume to carry at all times the equivalent of 4 months' production of the Whitehorse refinery.
3. The storage would be in constant use for a period of 2 years. The utility of these facilities beyond this period, by reason of the uncertainties of war, is too indefinite to form the basis of any computations of operating costs.
4. The estimated cost of the completed steel storage has been based upon the current costs of constructed storage in that general area.

Any variations from the above assumptions would change in some degree both the estimated capital investment required and the cost per barrel for handling and storing the petroleum products.

We understand that the anticipated daily production of aviation gasoline, motor gasoline, and heavy fuel oil by the Whitehorse refinery, and a 4 months' total of that expected production would be as follows:

Products	Daily rate (in barrels)	4 months' total (in barrels)	2 years' total (in barrels)
Aviation gasoline.....	479	58,000	348,000
Motor gasoline.....	1,018	122,000	732,000
Heavy fuel oil.....	650	78,000	468,000
Total.....	2,147	258,000	1,548,000

It would be necessary to construct approximately 360,000 barrels of storage at Skagway and 140,000 barrels at Whitehorse in order to unload the tankers and to store and have on hand an amount equivalent to 4 months' refining runs. The total costs on completed tankage in this area have approximated \$3.10 per barrel, for tanks of 10,000-barrel capacity. If larger than 10,000-barrel tanks were erected, the cost would be slightly less per barrel, while tanks of a smaller capacity would be somewhat higher per barrel. The construction of 500,000 barrels of storage would involve a capital expenditure of approximately \$1,550,000.

In estimating the cost per barrel of handling these products, we have amortized the cost of the tanks over a 2-year period for the reasons stated above. We have assumed transportation costs from Los Angeles, Calif., to Skagway, and transportation of the aviation and motor gasoline to Whitehorse through the products pipe line which is already in operation. No actual operating costs for this pipe line are available but, based upon conditions as they exist, we would estimate that it would cost approximately 25 cents per barrel to transport these products from Skagway to Whitehorse. Ample facilities exist for transporting even larger volumes of products than are involved in these calculations. The evaporation and handling charges set up are average figures for the product involved.

Estimated transportation, handling, evaporation, and storage costs in dollars per barrel of the stored product would be as follows:

*Transportation and storage costs per barrel for petroleum products at
Skagway-Whitehorse*

	Aviation gasoline	Motor gasoline	Heavy fuel
Tanker transportation, Los Angeles-Skagway.....	\$0.385	\$0.40	\$0.43
Evaporation losses and handling charges.....	.35	.27	.10
Pipe-line transportation, Skagway-Whitehorse.....	.25	.25	-----
Capital investment amortization, 2-year period considered.....	1.04	1.04	1.04
Total.....	2.025	1.96	1.57

If a 5-year period of service for the tankage were assumed rather than 2 years, then the cost per barrel to amortize the capital investment would be reduced from \$1.04 to 45 cents per barrel. Likewise, a 10-year period would further reduce this figure to 24 cents per barrel.

If less than 4 months' storage were carried, thereby reducing the volume of tankage required, or the amortization period exceeded 2 years, both capital investment and cost-per-barrel figures would be reduced. We have not estimated any salvage value for the tanks as it is not probable that they could be torn down, transported to the United States, and reerected as cheaply as equivalent new tanks could be constructed in any American oil field.

Sincerely yours,

RALPH K. DAVIES,
Deputy Petroleum Administrator.

The following letter is included in connection with testimony supra.

WAR DEPARTMENT,
Washington, December 23, 1943.

HON. HARRY S. TRUMAN,
United States Senate, Washington, D. C.

DEAR SENATOR TRUMAN: At the time when you requested me to call a meeting for consultation with Messrs. Knox, Ickes, and Nelson in respect to the completion of the Canol project, I was already carefully at work on that matter. I assumed that the purpose of your request was to bring to me the information from these various sources which would aid me in reaching such a decision carefully and with a proper and detached emphasis upon the long-range features as well as the immediate considerations of the project. While the subsequent announcement in the press of one-sided and not altogether accurate accounts of that conference surprised me a little, I write now simply to say that I am grateful to you for suggesting avenues of information to me and that I am still engaged in carrying out that investigation, which I hope will reach a sound conclusion.

I should be less than frank if I did not say that I am much impressed by various factors which have not been stressed by the critics of this operation. I believe that Mr. Nelson is misinformed as to the amount of saving which would be brought about by the cessation of work on the crude-oil pipe line and refinery. As of December 1 there was less than \$23,000,000 to expend in this connection. In this amount, however, there was included evacuation expense of some \$7,000,000 which would be incurred in any event—whether the project was continued or terminated at this time. There was also included the cost of further exploration for oil which can be omitted without impairing the usefulness of the original project. Accordingly, an immediate termination of work on the pipe line and refinery would in itself make an actual saving of not more than \$10,000,000. Practically all of the material and all of the crew required to complete the pipe line and refinery are now on the job.

As against this alleged saving of \$10,000,000 by abandonment of what has been accomplished, there are affirmative matters to which, in my opinion, sufficient attention has not been given. The Army engineers have discovered by exploration carried on during their work on this project a proven pool of oil of an estimated 100,000,000 barrels and possibly much more. The development of such a pool in that locality would powerfully reinforce the strategic position of ourselves and the Canadians in the North Pacific theater. On the other hand, if the United States Government retires from its work in that neighborhood, the military value of such a pool for use in this war would be lost. Thus such a termination as is suggested would not only destroy the use of the present moderate-sized development but it would foreclose this much larger supply. The present development of the Norman Wells project has opened a continuing relation between the United States and Canadian Governments out of which this supply of oil in the Northwest now brought to light can be developed mutually between those Governments as a large-sized Northwestern military reserve. Such a possibility would be lost if we now abandon our work and pull out.

We do not know when this war will end. To hastily and at once deprive the United States of all chance of realizing the far-reaching advantages which now appear to be possible from this development would seem to me at present decidedly reckless.

The Joint Chiefs of Staff of the United States Army and Navy have notified me that the completion and operation of the project which we are working on are necessary to the war effort and that the project should be completed and operated as soon as practicable. They have also recommended that consideration be given to developments leading to a full recovery of the predicted reserves. In the light of their determination and of the events taking place throughout the world bearing on the possible strategic necessity of oil from this project, I am certainly not now prepared to say that the project which our military advisers have determined to be necessary shall be abandoned.

Sincerely yours,

HENRY L. STIMSON, *Secretary of War.*

Further information relating to the Canol project was developed during preparation of this volume for printing and appears herewith at direction of the chairman:

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington, D. C., January 7, 1944.

MR. HUGH FULTON,
Chief Counsel, Truman Committee,
449 Senate Office Building, Washington, D. C.

DEAR MR. FULTON: I refer to your letter of December 27, addressed to Julius H. Amberg, with reference to estimates of costs of increasing the Canol project to one involving 20,000 barrels per day, 40,000 barrels per day, or 60,000 barrels per day.

The architect-engineer on the Canol project undertook the work of preparing the estimates in the early part of November 1943. However, a large portion of the data used had been accumulated over the period of time the project was being actively worked on. Studies of this general nature were necessary in determining engineering data for the 3,000 barrels per day project. Accordingly, the estimates prepared were merely an expansion of data already accumulated.

I enclose herewith totals of the architect-engineer's estimates of various possible expanded projects, together with a copy of the explanatory statement received from the Northwest division engineer in connection with the estimates. The estimates must be considered in the light of the explanatory statement. If you desire the detailed estimates, please advise.

The architect-engineer performed this work with his currently employed staff working on the Canol project and no additional employees were hired. The salaries of the employees involved in preparing the estimates, who were paid on a reimbursable basis to the architect-engineer, amounted to \$1,456. In addition, nonreimbursable salaries were paid by the architect-engineer to keymen in his organization to the extent of \$865. The value of unpaid overtime work by various members of the architect-engineer's staff is estimated at about \$250, computed at straight-time salary rates.

No supplemental contract was entered into with the architect-engineer or anyone else for the preparation of these estimates. The architect-engineer considers studies of this nature as part of the services rendered under his contracts for the Canol project.

Sincerely yours,

HERBERT A. FRIEDLICH,
Lieutenant Colonel, Judge Advocate General's Department, Assistant.

[Copy of teletype from Northwest Division to O. C. E. dated November 24, 1943]

1. Reference is made to letter dated November 11, 1943, file CE 678 (Canol) SPEKM, directing preparation of cost estimates for different expansions to Canol project.

2. The data presented herein should be regarded strictly as preliminary in nature and subject to revision when detail studies are made; they will be recalculated and submitted with supporting details and the bases of design at the earliest practicable date.

3. The preliminary studies and estimates are predicated upon the following principal assumptions:

A. That the directive intended cost estimates for crude transportation systems and refineries to cover installations for 20,000, 40,000, and 60,000 barrels per day, independent of and in addition to the 3,000 barrels per day provided by the initial Canol project. If it was intended that the expanded projects include the 3,000 barrels per day initial project, the total costs as given below may be somewhat reduced. This adjustment can readily be made in compiling the revised estimates if so desired.

B. That the crude production, pipe lines, and refineries for any of the terminal points, can be completed and put into operation in 1 year in the case of 20,000 barrels per day capacity; in 1½ years in the case of 40,000 barrels per day capacity; and in 2 years, in the case of 60,000 barrels per day capacity. The exception would be for a pipe-line route from Norman Wells to Fairbanks via Peele River, in which case the necessity for constructing a pioneer access road would undoubtedly delay completion at least 1 year.

C. That production of crude from the low areas subject to ice action at Norman Wells is a readily solvable engineering problem for which estimated costs can be given.

D. That crude can be recovered from underwater areas for a distance of 800 feet from the shore line by directional drilling.

E. That, while a larger quantity production per well, a greater ultimate recovery from the field, and more economical per-barrel costs are indicated for a one-well-per-20-acre spacing, the rate of recovery and amount of crude made available for war emergency use will be greater with a spacing of one well per 10 acres.

F. That to maintain accelerated production with a 10-acre well spacing, repressuring facilities are warranted.

G. That while the cost of the repressuring facilities are carried in the investment charges, the installation will result in additional gasoline recovery from the volatile gases which would otherwise be lost, and that this additional recovery is properly creditable to operation charges, which has been done.

H. That, for the purpose of these estimates, sufficient reserves can be developed at or in the vicinity of Norman Wells field to establish a potential of 75,000,000 barrels, and to maintain the 20,000, 40,000, and 60,000 barrels per day production rates for periods of 10.25, 5.12, and 3.14 years, respectively.

I. That all wildcatting under the Imperial Oil and Noble Drilling contracts will stop, and all 7 rigs now on the job will go on production drilling on January 1, 1944; in which case 14 more rigs, including 3 already purchased and now at Fort Smith, must be delivered and start drilling by September 1, 1944, in order to develop 20,000 barrels per day from 133 wells, including the 32 existing wells by December 31, 1944; 20 more rigs, including 3 already purchased, must be made available to start drilling September 1, 1944, in order to develop 40,000 barrels per day from 266 wells, including the 32 existing wells, by June 30, 1945; 22 more rigs, including 3 already purchased, must be made available to start drilling September 1, 1944, in order to develop 60,000 barrels per day from 400 wells, including the 32 existing wells, by December 31, 1945.

J. That credit can be taken from the drilling done by the Imperial Oil and Noble Drilling up to September 1, 1944, with the 7 rigs now on job, which will amount to 40 wells in addition to the 32 wells now drilled. This will represent an estimated expenditure under existing contracts of approximately \$6,000,000 by the Imperial Oil, Ltd., and approximately \$2,500,000 by the Noble Drilling Corporation, exclusive of 7 rigs purchased for the Noble Corporation.

K. That, on the assumed potential of 75,000,000 barrels of crude, depreciation on investment will be over the same periods as assumed depletion of the field; 10.25 years for production at 20,000 barrels per day, 5.12 years at 40,000 barrels per day, and 3.4 years at rate of 60,000 barrels per day. The assumption of a 75,000,000 barrel potential may be somewhat liberal, but should additional crude be developed, the depreciation and operating charges will be lowered proportionately.

L. That the expanded Canol project pipe lines will follow the route of the initial 3,000 barrels per day line from Norman Wells to Whitehorse via Johnson's Crossing, thence along the Alaska Highway to Northway and/or Fairbanks, with refineries at either place; and that the route to Tidewater will be the same from Norman Wells to Johnson's Crossing, thence to Skagway via Garcross.

M. Estimates for a northerly route from Norman Wells via Peele River pipe line to Fairbanks are based solely upon preliminary aerial reconnaissance, estimated distances, and a hypothetical profile. From a general knowledge of the country to be traversed, the estimated costs are believed reasonably comparable with other preliminary estimates herein presented.

N. That the refineries as designed will include catalytic cracking units and will be capable of yielding products as follows:

Product	Capacity of refinery in barrels per day		
	20,000	40,000	60,000
Aviation gasoline (130 grade).....	5,920	11,840	17,750
Motor gasoline (4 pounds R.V. presine).....	7,220	14,440	21,650
Fuel oil, approximate (200 S.S.F. at 210° F.).....	3,340	6,680	10,100

9918 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

4. Following are the preliminary break-down estimates of cost for the various studies called for by the directive; summaries of the different studies and combination set-ups for production, crude transportation, and refining at different places, or for transshipment of the crude to tidewater at Skagway:

Estimates of the cost of constructing pipe lines and refineries of capacities of 20,000, 40,000, and 60,000 barrels per day

Construction item	20,000	40,000	60,000
Production (Norman Wells)	10,557,500	23,519,500	33,722,500
Pipe line:			
Norman Wells to Whitehorse	31,827,000	36,280,000	48,732,200
Norman Wells to Skagway	35,367,800	41,044,500	57,064,300
Norman Wells to Northway	47,231,700	53,149,700	72,575,000
Norman Wells to Fairbanks via Whitehorse	55,779,400	63,855,000	86,586,500
Norman Wells to Fairbanks via northern route	69,134,000	75,035,000	92,245,000
Refinery at—			
Whitehorse	34,433,000	60,020,000	86,645,000
Northway	37,178,000	65,093,000	94,000,000
Fairbanks	34,982,000	60,920,000	87,965,000

WAR DEPARTMENT,
Washington, April 22, 1944.

Mr. HUGH A. FULTON,
Chief Counsel, Truman Committee,
449 Senate Office Building, Washington, D. C.

DEAR MR. FULTON: I have your letter of April 21, 1944, reference H-421-F, in which you make certain inquiries concerning the Canol project and the Alaskan Highway.

As to Canol, the crude oil reached Whitehorse through the pipe line some days ago and I understand that tanks there are now being filled. On April 30 it is planned to start operation of the refinery first stage.

It is the plan to proceed with operation of the pipe line and refinery, including the second stage of the refinery which it is anticipated will be completed about May 31.

Exploration drilling in the area outside the proven Norman Wells field was suspended some time ago and I understand that only such work is being done in the Norman Field itself as to assure continued production of 4,000 barrels a day.

It is too early to give an itemized statement of the cost of production as this will require some experience when operation starts.

As I previously informed you, negotiations are under way with Imperial Oil Co., Ltd., and the Canadian Government which are not yet completed. If the negotiations reach consummation, as we hope, the cost of the petroleum will be reduced and this, of course, will affect the total cost of production.

It is requested that the committee make no statement at the present time with respect to such negotiations. As soon as they have reached the stage permitting announcement, the committee will be informed.

I shall obtain the information which you request concerning the highway and transmit it to you later.

Yours sincerely,

JULIUS H. AMBERG,
Special Assistant to the Secretary of War.

WAR DEPARTMENT
BUREAU OF PUBLIC RELATIONS
PRESS BRANCH

BACKGROUND ON THE CANOL PROJECT

Actual operation of the \$24,000,000 modern oil refinery built by the United States Army at Whitehorse, Yukon Territory, Canada, was started on April 30, 1944. It is part of the Canol project. An average of 3,000 barrels of crude oil per day will be processed when the refinery is operating at full capacity, from

which about 479 barrels of aviation gasoline, 1,018 barrels of motor gasoline, and 525 barrels of fuel oil will be produced each day for the use of United States and Canadian forces in Alaska, Yukon Territory, and British Columbia.

Crude oil is brought to the refinery at Whitehorse—jumping-off town of the gold-rush days—from an oil field discovered by Imperial Oil, Ltd., in 1920, on the Mackenzie River near Fort Norman, almost on the Arctic Circle. The oil is pumped through a pipe line constructed by the Army at a cost of about \$31,000,000. This line runs from the field across the Mackenzie Mountains, to Whitehorse, 597 miles over territory that was never surveyed until the engineers employed by the Army staked the route for the pipe line.

The products of the refinery will be distributed to all stations for 900 miles along the Alaskan Highway, in Alaska and Canada, by a pipe-line system which cost about \$35,000,000 and which has been in service for months. This system of pipe lines, for distribution of refined products, extends from the air base at Watson Lake, Yukon Territory, along the highway through Whitehorse to Fairbanks, Alaska, and also to Skagway, on the southern coast of Alaska, where refined products may be delivered either to or from the Canol distribution system.

Production of oil at the Norman Wells field is being carried on by Imperial Oil, Ltd., a Canadian corporation, which is a subsidiary of the Standard Oil Co. (New Jersey). Under the terms of the new contract with the United States Army, Imperial undertakes to keep the field capable of producing at least 4,000 barrels per day for Army use during the war.

As compensation to the United States for its expenditure of about \$12,000,000 in the development of Imperial Oil's Norman Wells field and other oil resources in the northwest territories of Canada, Imperial has agreed to continue at its own expense the exploration for new oil fields that during the past 2 years has been financed by the United States Army. Imperial also has agreed to deliver for use of the United States for military purposes one-half of the oil in the Norman Wells field up to 30,000,000 barrels and one-tenth of all new oil fields discovered by Imperial in northwest territories until the reserves aggregate a total of 60,000,000 barrels.

All oil purchased by the United States Government from this area in the future will be paid for at cost of production plus 20 cents per barrel, in the field less a rebate of 5 cents for rental and purchase of equipment. After 1954, the United States is obligated either to purchase one-fifth of the actual production from Imperial's fields in the northwest territories which may be delivered outside the local Norman Wells area, or to release such quantities of oil to Imperial, for sale by it. All profit realized from such sale above the price paid Imperial by the United States is to be paid to the United States Government. The oil field exploration and transportation equipment procured by the Army for the Norman Wells operations is to be turned over to Imperial Oil Co. as part of the Army's contribution to the development of the petroleum reserves, but reimbursement for this equipment is provided in the form of a rebate of 5 cents per barrel on all crude oil purchased or released by the United States from the reserves.

The Government of Canada has approved the contract between the United States Army and Imperial Oil, Ltd.

The decision to undertake the Canol project was made on April 29, 1942, when the Japanese had temporary mastery of the Pacific Ocean. The enemy had sent submarines to shell points on the Pacific coast and were preparing to attack Alaska. Tanker losses from submarine activities at that time had reached alarming proportions and the oil supplies of the Middle East were actively menaced by Germany.

If North America was to be defended by meeting the Japanese in Alaska while Pacific shipping lanes farther south also were being attacked, land communications to Alaska (the Alaskan Highway) would be necessary and every possible means of local supply would be needed.

The Norman Wells field was the only actual oil field in the extreme northwestern part of the continent. Although it had supplied local demand of miners, traders, and trappers for several years its actual extent had never been determined. There was no assurance that its probable productive capacity would exceed 3,000 barrels a day.

To transport the oil from the field to a point of refining a pipe line was required. A 4-inch pipe was designated by engineers as best suited, because of availability, relative light weight, and low tonnage, for use in carrying the oil. It was estimated that by using high pump pressures an average of 3,000 barrels a day could be pumped through a 4-inch line, even under the Arctic climatic

conditions, inasmuch as the Norman Wells oil is amazingly fluid at low temperatures and does not solidify even at 70° F. below zero. Accordingly, the production and transportation of 3,000 barrels per day became the measure of the project, and a refinery of that capacity was decided upon.

In locating the refinery consideration of the shortest practicable distance between the Norman Wells field and the Alaskan Highway, choice of pipe-line routes through the mountains, access to tidewater, and central location with respect to the extent of the highway itself resulted in the final selection of Whitehorse as the refinery site.

It has always been judged that defense of Alaska or any offensive conducted through Alaska would be chiefly of an aerial nature, and the Alaskan Highway was built as an emergency means of supplying the chain of Canadian and American air bases in northwestern Canada and Alaska, over which planes were being flown also to Russia. Consequently, aviation gasoline was considered to be of greatest importance and motor gasoline of next priority.

The refinery accordingly was designed at first to employ the most modern techniques for the production of maximum possible aviation gasoline. As originally planned, it could have produced 1,500 barrels per day of 100-octane aviation gasoline. Later, as it began to appear that the Japanese menace against the Pacific coast and Alaska was not as serious as at first thought, it was decided that completion of the project could be scheduled safely for a later date in the war program, and, therefore, it was deprived of some of the high priority ratings that had been assigned to it earlier and that would have permitted operation of the refinery at an earlier date. In line with this policy, a catalytic cracking unit, which would have served to increase the output of aviation gasoline, was deleted from the refining plans in order to reduce the cost of the refinery and to release important amounts of critical materials for other phases of the war effort.

As now being completed, the Whitehorse refinery will produce amounts of aviation and motor gasoline which correspond roughly with the anticipated peacetime demand in the territory to be served by it, and which will make an important contribution to the wartime demand in the North Pacific region.

The construction of the pipe line and the development of oil production at Norman Wells have severely tested the ingenuity and strength of men and machines allocated to those tasks. The oil field is situated 925 miles air-line distance north of Edmonton, Alberta, where headquarters for the project were established, but all materials taken into Norman Wells during the first season for oil-field development and work on the eastern section of the pipe line had to be transported from the railhead at Waterways, Alberta, down the Athabaska, Slave, and Mackenzie Rivers to Norman Wells, a distance of approximately 1,200 miles.

A part of this water route was across the open waters of Great Slave Lake, and during some of the first trips, made under conditions of urgent military necessity, considerable cargo was lost by the wrecking of barges and towboats in violent storms to which the lake is subject. In order to accomplish the mission, it became necessary to provide additional means of transportation between the railway and Norman Wells. A quantity of new towboats and barges was constructed during the winter of 1942-43, and temporary winter roads were made across the frozen swamps and tundras of northern Canada, by means of which some freight was taken into Norman Wells and some was dispatched to the banks of the Mackenzie River where it was picked up the following spring and transported to Norman Wells by water.

The crude oil pipe line had to be constructed across a series of mountain ranges known as the Mackenzie Mountains, traversing a terrain which had been penetrated previously only by a few trappers and explorers. The best routes were reconnoitered by airplane and by dog team. The preliminary surveys of the route finally selected were accomplished by small survey parties which utilized dog team transportation, and to a lesser extent tractors, in the winter months, and pack horses in the summer months. Parts of the supplies for these parties were delivered by airplanes which landed with skis on the frozen surfaces of lakes in winter and with pontoons on the water in summer.

The Fort Norman oil field has proved to be more extensive than was estimated before its further development by the United States Army. Its total extent is unknown, but the proved productive area exceeds 4,000 acres, and the present

proved reserves are believed to approximate 60,000,000 barrels. It appears possible with new technique that the field may prove even more productive.

The oil of the Norman Wells field has accumulated in a porous limestone in which the porosity is due largely to the presence of reefs or bars composed partially of coralline material. At its lower endge, the oil is known to be in contact with water.

The production from the field has not yet been sufficient to permit satisfactory estimates of the total productivity of individual wells or of ultimate recoveries of oil per acre. All wells flow naturally when completed and none yet has required any form of artificial production. The oil has a brownish green color.

The oil has two extraordinary characteristics—its extremely low pour point and its amazingly low water content. Laboratory tests by the Standard Oil Co. of California, Imperial Oil, Ltd., the United States Bureau of Mines, and the United States Naval Research Laboratory agree that the oil is still fluid at minus 70° F. Similar tests by Standard of California, the Petroleum Rectifying Co. of California, and the Treolite Co. of California showed less than 0.05 percent water in the oil—a figure far below the average natural water content of crude oil.

The oil contains from 0.28 to 0.34 percent of sulfur. Its gravity ranges from 37.8° to 40.6° API, the average being about 39.5° API. The straight distillation would yield about 35 percent of gasoline with an octane number of about 57.

A total of 44 wells has been drilled in the district, of which 5 are dry holes or negligible producers in or immediately adjacent to the field, and 5 are unsuccessful wildcat wells in other localities. A total of 34 commercially productive wells has been completed, having an aggregate, initial, potential production of 5,663 barrels per day.

The productive zone is encountered between depths of 1,050 and 2,050 feet. The largest initial potential production from any well so far completed was at the rate of 550 barrels per day. The ratio of gas and oil produced ranges from about 400 to 1,200 cubic feet per barrel.

The oil being in a limestone reservoir, it is possible to increase the natural productivity of the wells by injecting acid into the reservoir formation, thereby enlarging the passageways through which oil enters the wells. This has been accomplished on 21 wells. The average increase of productivity by acid treatment, based on records of nine wells, is about 250 percent.

That part of the reservoir formation which is occupied by oil has been calculated to have an average thickness of about 265 feet within the producing area. Of this thickness, about 25 percent is believed to be porous oil-filled limestone having averaged effective porosity of approximately 17 percent.

A considerable amount of geophysical survey work by the reflection seismograph method has been accomplished by Imperial Oil, Ltd., for the account of the United States Army, with a gratifying degree of success. In addition, preliminary geological surveys covered most of the Mackenzie River, Arctic Red River, and Peel River Basins. On the basis of these surveys and previous work accomplished by Imperial, Imperial will conduct an extensive campaign of exploratory drilling in some of these areas.

A very large part of Norman Wells field is beneath the waters of the Mackenzie River, and consequently, in order to drain the oil adequately from beneath the submerged areas, it will be necessary to drill wells which start on dry land and strike the productive formation at locations beneath the river. The first attempt to do this was surprisingly successful, the well being completed about 975 feet laterally from the surface location at a drilling depth of 2,394 feet.

ARMY SERVICE FORCES,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D. C., April 11, 1944.

Letter of intent in connection with contract No. W-142-eng-52, as amended by supplemental agreements Nos. 1, 2, and 3.

IMPERIAL OIL LTD.,
Toronto, Canada.

GENTLEMEN: You are advised that the Government will negotiate with you a supplemental agreement to your contract, described above, with the following provisions:

1. That supplemental agreement No. 1 to above-mentioned contract shall be acknowledged as being terminated and canceled.

2. That said contract No. W-412-eng-52 and supplemental agreements Nos. 2 and 3 (all as amended pursuant hereto) shall hereafter and until terminated remain in full force and effect as to the proven area at and adjacent to Norman Wells, but shall not apply to or have force and effect as to any area outside said proven area; the said proven area at and adjacent to Norman Wells shall be defined as that area enclosed within the green line of the plan hereto annexed as exhibit I and copies of said plan shall be attached as appendix A to proposed supplemental agreement.

3. That the equipment and supplies (including compressors, battery stations, etc.) intended for development and/or exploratory work now en route to Norman Wells shall be delivered at Norman Wells by the Government and such thereof as may be required in the proven area, shall be there installed by the contractor and such further equipment and supplies shall be furnished and delivered at Norman Wells and such further work done and completed at the proven area (all under the terms and during the life of said contract No. W-412-eng-52 and its supplemental agreements as amended pursuant hereto) as may be necessary to render and keep the proven area capable of efficiently producing and delivering at least 4,000 barrels of crude petroleum per day to the Government and the contractor shall be obligated, during the same period, to keep the proven area capable of delivering at least 4,000 barrels per day. No action under this clause 3 shall prevent or impair the supplying of the local requirements for petroleum or petroleum products except with the consent of the Government of Canada.

4. That in lieu of the prices for crude oil mentioned in sections 8 (a) and 10 of article I of the original contract, the Government, after May 1, 1944, and during the remaining life of said contract No. W-412-eng-52 and its supplemental agreements (all as amended pursuant hereto), will pay the contractor for crude petroleum delivered from the field tank batteries or delivered to the refinery storage for processing from wells drilled under said last named contract, 20 cents Canadian currency per barrel. The Government will also continue to reimburse the contractor for all costs as provided in said contract No. W-412-eng-52 and its supplemental agreements but the contractor will pay any royalty owed to private third parties.

5. The contractor is embarking on an extensive exploratory program in the northwest territories and as conducive to efficiency, expedition, and economy of operation for both parties, provision shall be made for such exchanges, consolidations, joint usage, and divisions of expenses relating to production, general supervision, general office, utilization of employees, establishments, tankage, facilities, and services and furnishing or sale of materials and supplies on hand as may be agreed upon by the contracting officer and the contractor's project manager as being of mutual benefit.

6. That on the termination of said contract No. W-412-eng-52 (as amended pursuant hereto), the contractor will give to the Government of the United States the continuing right to purchase for its own use but not for resale, at the wellhead or in the contractor's field tanks, crude petroleum from the said proven area to an amount which shall not exceed one-half of the recoverable reserves remaining in the proven area at the said contract termination last above-mentioned or 30,000,000 barrels, whichever shall be the smaller, and in addition thereto the said Government shall have the continuing right to purchase for its own use but not for resale 10 percent of the recoverable reserves of crude petroleum found in each field hereafter successively discovered by drilling and developed by the contractor in the northwest territories until there shall be a combined total of 60,000,000 barrels of crude petroleum from the proven area and the fields so discovered and developed subject to the aforesaid continuing right to purchase of the Government. The Government shall pay for the said crude oil the cost thereof to the contractor, including all direct and indirect expenses incurred in connection with finding, development, and production thereof, with proper provisions for depreciation and depletion, but no depreciation or depletion shall be charged in relation to the buildings, installations, and equipment covered by clause 7 hereof or in relation to the moneys expended by the Government through the contractor on exploratory work and, in addition to the said cost, the Government shall pay to the contractor 20 cents Canadian currency per barrel. The above right to purchase of the Government shall be subject to the following conditions:

(1) To the prior and preferred supplying of all local requirements for crude petroleum and petroleum products currently.

(2) The above right to purchase shall, from and after May 1, 1954, be exercised currently and the Government of the United States shall accordingly take delivery during each month of 20 percent of the respective amounts of crude oil which the contractor produces for export during said month from the proven area and from each of the other areas in which the Government has its right to purchase crude oil until a total of 60,000,000 barrels of crude oil shall have been received by the said Government directly or by delivery to the contractor as hereinafter in this subclause (2) provided or partly by each of the said methods; in case the Government does not take all or a part of the said 20 percent, as above set forth, the Government shall be deemed to have delivered the amount of said 20 percent which it does not take delivery of during the month in question to the contractor for the latter's own use and the contractor shall pay to the Government all of the excess by which the average wellhead price received by the contractor for crude oil exported from the field in question during said month exceeds the price payable by the Government for said crude oil at the wellhead, namely, 20 cents Canadian currency per barrel plus cost as above defined.

(3) In case of war emergency, the contractor will use all reasonable endeavors to produce and deliver to the Government the crude oil which it has the right to purchase hereunder in the quantities and at the times desired by the Government. Except in case of war emergency the contractor shall not be asked to produce any of its fields inefficiently or to the injury of said fields.

(4) Any costs in excess of those which the contractor would normally incur in the ordinary course of its business, if incurred at the request, and for the benefit of the Government, shall be for account of the Government and paid by it. The Government shall take delivery of the said crude oil currently as it purchases the same and the contractor shall not be obligated to furnish storage for the same.

7. That at the termination of said contract No. W-412-eng-52 and its supplemental agreements (all as amended pursuant hereto), the Government shall transfer to and vest in the contractor all the wells, buildings, installations, tanks, battery stations, drilling, and other equipment (including spare parts) and materials and supplies including all rights relating thereto which the Government then has in the Norman area or en route thereto for development and/or exploratory work, including such marine and road transportation and construction equipment as is required to service the same, and any other buildings, equipment, or supplies including all rights relating thereto which, not being required by the Government may be of use to the contractor in his proposed exploratory and development program. The Government agrees not to remove permanently from the Norman area any of the above items without the consent of the contractor and to now deliver to the contractor all of such items as are not required for the contractor's operations on the proven area and the contractor shall have the right to use the same from May 1, 1944, in his proposed exploratory and development program, paying therefor a rental equivalent to 5 cents Canadian currency per barrel for each barrel of oil purchased by the Government under article 4 hereof. All such property as can now be itemized and listed shall be now itemized and listed and attached as appendix B to the proposed supplemental agreement. Further items can be added to said appendix B from time to time by the contracting officer and the project manager and a final itemizing and listing of the property shall be made at the termination of the contract No. W-412-eng-52 by the contracting officer and the project manager and attached to the proposed supplemental agreement as appendix C. For the above property to be transferred to and vested in the contractor, the contractor shall pay the Government the sum of \$3,000,000 Canadian currency, said sum to be payable only out of the proceeds of oil delivered or deemed to be delivered to the Government under clause 6 hereof at the rate of 5 cents Canadian currency per each barrel of oil so delivered or deemed to be delivered.

8. The original contract No. W-412-eng-52 and the supplemental agreements Nos. 2 and 3 (all as amended pursuant hereto) shall terminate on the termination of hostilities in the present war or at the option of the Government at the expiry of such period not exceeding 1 year after the said termination of hostilities as the Government may desire, provided that in the latter case the Government shall give the contractor 3 months' prior written notice of such termination.

Except as may be modified by a supplemental agreement contemplated by this letter of intent, the terms and conditions of your contract No. W-412-eng-52 and supplemental agreements Nos. 2 and 3 shall remain in full force and effect.

9924 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

Kindly indicate on three copies hereof your acceptance of this letter of intent and return all executed copies to the contracting officer.

Very truly yours,

THE UNITED STATES OF AMERICA,
By O. P. EASTERWOOD, Jr.,
Major, Corps of Engineers, Contracting Officer.

Accepted April 29, 1944.

IMPERIAL OIL LTD.,
By R. V. LeSUEUR, *President.*

WAR DEPARTMENT,
Washington June 7, 1944.

Mr. HUGH A. FULTON,
Chief Counsel, Truman Committee, Washington, D. C.

DEAR MR. FULTON: In reply to your letter of June 2, 1944, reference H-62-F, in which you asked about any pending appropriations being sought by the War Department in connection with the Canol project.

I enclose memorandum of June 7, 1944, addressed to me by General Richards, Director of the Budget Division, Office Chief of Staff, which gives you the amount in the estimates which are now before Congress.

You will note that the estimates cover maintenance and operations and not original construction.

Yours sincerely,

JULIUS H. AMBERG,
Special Assistant to the Secretary of War.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF STAFF,
Washington, D. C., June 7, 1944.

Memorandum for: Mr. Julius H. Amberg, Special Assistant to the Secretary of War:

Subject: Senate investigation, Canol.

1. Budget estimates for Corps of Engineers covering the fiscal year 1945, which are now being processed by the Congress, contain the following items in connection with the Canol project.

Production.—Facilities at Norman Wells, including oil wells, drilling and pumping equipment, tankage, gathering lines, and access roads: Maintenance, \$708,070; operations, \$2,843,720; total, \$3,551,790.

Canol No. 1.—Crude oil pipe lines, Norman Wells to Whitehorse, 597 miles, pumping stations, tankage, and communications: Maintenance, \$1,334,740; operations, \$1,167,540.

Canol Road.—Service road, approximately 528 miles, generally paralleling crude oil pipe line from Norman Wells to Johnson's Crossing: Maintenance, \$2,694,010.

Refinery.—Refinery at Whitehorse, including all important facilities, tankage, and housing: Maintenance, \$969,100; operations, \$2,315,280.

Canol No. 2.—Pipe line from Skagway to Whitehorse, 115 miles, including pumping equipment, unloading facilities, tankage, and communications: Maintenance, \$173,690; operations, \$352,220.

Canol No. 3.—Pipe line from Carcross to Watsons Lake, 265 miles with access roads, pumping stations, tankage, and communications: Maintenance, \$284,130; operations, \$509,630.

Canol No. 4.—Pipe line from White Horse to Fairbanks, 606 miles, with pumping stations, tankage, and communications: Maintenance, \$699,270; operations, \$1,185,140.

Flight strips.—Flight strips on Mackenzie-Athabaska system at nine locations between Waterways and Norman Wells: Maintenance, \$1,203,148.

Total maintenance-----	\$8,066,158
Total operations-----	8,373,530
Grand total-----	16,439,688

2. The necessity of operating and maintaining the Canol project is principally to render supply of petroleum products to the airfields located along the northwest staging route and to various stations and installations lying along the Alaska Highway, itself, all of which constitute an essential part of the military mission in this region.

Operations consist essentially of producing crude oil in the Norman Wells field: transporting the crude by pipe line to the refinery at Whitehorse; re-

fining the crude to produce aviation and motor gasoline, Diesel and fuel oil; distribution of these products by pipe lines to various storage and supply points along the Alaska Highway between Watson Lake, British Columbia, and Fairbanks, Alaska:

Maintenance consists of the necessary repairs and replacements to keep in operation the various pipe lines, pumping plants, refinery, operational buildings, housing, utilities, access roads, communication facilities, tank farms, dock facilities, etc.; to provide fire protection, and to accomplish all special and ordinary emergency repairs caused by landslides, storms, floods, ice damage, and similar contingencies common to operations in the far north country. A total of approximately 1,580 miles of pipe lines including the gathering system at Norman Wells, 34 pumping stations, access road across the Mackenzie Mountains, and a refinery are involved; also extensive tank farm storage, distribution tankage, and other operational facilities.

GEORGE J. RICHARDS,
Major General, General Staff Corps,
Director, Budget Division.

JUNE 9, 1944.

MR. JULIUS H. AMBERG,
Special Assistant to the Secretary of War,
Washington, D. C.

(In reply refer to H-69-F)

DEAR MR. AMBERG: Thank you for your letter of June 7 with respect to the appropriation concerning the Canol project.

Since presumably the appropriation will have to be acted upon soon, the committee would appreciate receiving, as soon as possible, a statement as to how many barrels of motor gasoline and aviation gasoline, if any, have been refined at the refinery to June 1, and an estimate of the amount expected to be refined for each of the months during the period for which the appropriation of \$16,439,688 is sought.

Sometime ago, the committee requested information as to the cost of producing gasoline at the refinery, and the cost of transporting oil from the pipe lines. Since these must now be known, the committee would appreciate this information. In computing such costs, the committee would appreciate being informed as to whether any portion of the maintenance charges and any portion of the original cost of the project are included.

Your letter of June 7 bears the stamp "secret." In that connection, the committee would appreciate being given the official definition by the War Department of the term "secret," and the reasons why these budgetary estimates are considered within that classification.

Very truly yours,

HUGH FULTON, *Chief Counsel.*

WAR DEPARTMENT,
Washington, June 14, 1944.

MR. HUGH A. FULTON,
Chief Counsel, Truman Committee,
Senate Office Building, Washington, D. C.

DEAR MR. FULTON: I enclose letter of this date, replying to your inquiry of June 9, 1944, asking certain questions as to the Canol project. You will note that the letter is classified as secret.

In your letter of June 9, which replied to mine of June 7 in which I transmitted a memorandum as to the appropriation request signed by General Richards, you also asked as to the secrecy of General Richards' memorandum.

Both General Richards' memorandum and the present enclosed letter are so classified solely because, I understand, there has been a long-standing Government custom of withholding detailed items covered by an appropriation bill until the same has been submitted to the Appropriations Committee and it has had opportunity to consider the same and report.

The figures in the accompanying letter as to production may be used by you at once if you desire.

The details as to the pending appropriation bill, which has not yet reached the Senate Appropriations Committee, may be released from classification if satisfactory to that committee. Several members of the Truman committee,

9926 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

including Senator Truman, are also members of the Appropriations Committee which, I believe, will reach consideration of the bill within a short time.

Yours sincerely,

JULIUS H. AMBERG,
Special Assistant to the Secretary of War.

WAR DEPARTMENT,
Washington, June 14, 1944.

Mr. HUGH FULTON,
Chief Counsel, Truman Committee,
Senate Office Building, Washington, D. C.

DEAR MR. FULTON: Reference is made to your letter of June 9, 1944 (H-69-F). During the month of April 14,849 barrels of crude oil were fed into the refinery at Whitehorse. During April no cuts were segregated and the crude oil fed in was utilized in testing and returned to storage.

During the month of May 14,017 barrels of crude oil were fed into the refinery, resulting in—

- 3,015 barrels of untreated straight run motor gasoline.
- 7,710 barrels of cracking unit charging stock used for hydrostatic testing of the thermal cracking unit.
- 1,745 barrels of reformer charging stock.
- 60 barrels of butane to be used as charging stock in second stage unit.
- 600 barrels of Diesel oil grade X-ray.
- 56 barrels of slop oil.
- 822 barrels lost.

In addition to the products produced since the beginning of operations, there are 7,352 barrels of bottom stock which are classified as road oil, although somewhat under strict specifications. They will be used as dust palliative on roads in vicinity of Whitehorse and on taxiways on the Whitehorse airport.

From 1 June to 7 June, inclusive, 22,252 barrels of crude oil were handled by first stage unit of the refinery, with the following yields:

- 5,848 barrels untreated straight run motor gasoline.
- 7,304 barrels thermal cracking unit charging stock which was placed in storage.
- 1,351 barrels of reformer unit charging stock which was placed in stock.
- 514 barrels of charging stock which was accumulated for use in Stage 2 and placed in storage.
- 632 barrels of slop oil.
- 5,769 barrels of Diesel X-ray finished product.
- 1,243 barrels lost.

The quantities expected to be produced after the second stage is placed in production about July 15, 1944, are as follows:

	Barrels per day	Amount
Aviation (130 index rating)	337	\$112,895
Motor gasoline	1,048	351,080
Diesel oil	400	134,000
Fuel oil	280	93,800
Total	2,065	691,775

It is expected to produce, during the period covered by the appropriations, July 1, 1944, to July 1, 1945, 753,725 barrels of usable products which includes aviation and motor gasoline and Diesel and fuel oil. The above is based on operating 335 days per year.

The cost of operation of the refinery at Whitehorse, yearly, including all pertinent facilities, tankage, and housing, is estimated as follows:

Maintenance	\$969,100
Operation	2,315,280

The cost of transporting crude oil from the oil field at Norman Wells to the Whitehorse refinery, 597 miles, including operation of pumping stations, tankage and wire communications, is estimated as follows:

Maintenance	\$1,334,740
Operation	1,167,540

INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM 9927

The cost of maintaining a road from Camp Canol, opposite Norman Wells, to Johnson's Crossing, approximately 528 miles, is estimated as follows:

Maintenance..... \$2, 694, 010

The cost of production of Norman Wells fields is estimated as follows:

Maintenance \$708,070
Operations 2,843,720

The cost of maintaining flight strips along the Athabasca-Mackenzie system is \$1,203,148.

The above costs include maintenance and operation charges but do not include any portion of the original cost of the project.

The total cost of operation and maintenance for the production of crude oil at Norman Wells, operation and maintenance of the crude line from Norman Wells to Whitehorse, and operation and maintenance of the refinery, maintenance of road from Canol to Johnson's Crossing, and the maintenance of flight strips along the Mackenzie River amounts to \$13,235,608.

The operation and maintenance cost of the distribution lines known as Canol 2, 3, and 4 which includes pipe lines from Skagway to Whitehorse, 415 miles, pumping equipment, unloading facilities, tankage, and communications; pipe line from Carcross to Watson Lake, 265 miles, with access roads, pumping stations, tankage, and communication; pipe line from Whitehorse to Fairbanks, 606 miles, with pumping stations, tankage, and communication, is \$3,204,080. However, these distribution lines are common to the system whether gasoline is manufactured at Whitehorse or imported at Skagway.

Sincerely yours,

JULIUS H. AMBERG,
Special Assistant to the Secretary of War.

WAR DEPARTMENT,
Washington, June 20, 1944.

Mr. HUGH A. FULTON,
*Chief Counsel, Truman Committee,
449 Senate Office Building, Washington, D. C.*

DEAR MR. FULTON: I supplement my letter of this date in reply to your letter of June 15 in which you asked prices at west-coast ports for oil products, plus freight, to Skagway.

It seems appropriate to invite attention to the fact that all of the production of petroleum products in the United States is allocated to necessary uses and consequently substantial importations from the Caribbean area are necessary. This domestic deficiency is especially acute in the Pacific-coast area. Therefore, the only significant cost data for comparison with costs of products yielded by the Canol project are costs of such products delivered from the Caribbean area, provided the necessary tankers were available. Cost data on products obtained at Aruba, Dutch West Indies, appear in the following table.

Route: Aruba, Dutch West Indies by tanker to Skagway.

Costs per barrel

Item	Gasoline		Diesel oil	Fuel oil
	100 octane	80 octane		
Initial cost.....	\$6. 720	\$2. 688	\$1. 733	\$0. 950
Ocean freight.....	1. 828	1. 741	1. 792	1. 988
Skagway cost.....	8. 548	4. 429	3. 525	2. 938

Yours sincerely,

JULIUS H. AMBERG,
Special Assistant to the Secretary of War.

9928 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

WAR DEPARTMENT,
Washington, June 20, 1944.

Mr. HUGH A. FULTON,
Chief Counsel, Truman Committee,
449 Senate Office Building, Washington, D. C.

DEAR MR. FULTON: In reply to your letter of June 15, 1944, in which you request a statement of the prices being paid at west coast ports by the War Department for each of the products expected to be produced at the Canol refinery after the second stage is placed in production and a statement of the prices being paid by the War Department for the transportation by tanker of each of the products referred to from west coast points to Skagway, the following data are submitted:

(a) Route: Los Angeles, Calif., by tanker to Skagway.

Costs per barrel

Item	Gasoline		Diesel oil	Fuel oil
	100-octane	80-octane		
Initial cost	\$6.720	\$2.835	\$1.800	\$1.265
Ocean freight .....	.680	.641	.651	.705
Skagway cost	7.400	3.476	2.451	1.970

(b) Route: San Francisco, Calif., by tanker to Skagway.

Costs per barrel

Item	Gasoline		Diesel oil	Fuel oil
	100-octane	80-octane		
Initial cost	\$6.720	\$2.888	\$1.850	\$1.315
Ocean freight .....	.613	.575	.585	.639
Skagway cost	7.333	3.463	2.435	1.954

(c) Route: Seattle, Wash., by tanker to Skagway.

Costs per barrel

Item	Gasoline		Diesel oil	Fuel oil
	100 octane	80 octane		
Initial cost	¹ \$6.949	\$3.117	\$2.090	¹ \$1.555
Ocean freight .....	.510	.479	.483	.519
Skagway cost	7.459	3.596	2.573	2.074

¹ Aviation gasoline (100-130 grade) and Navy special fuel oil are not normally available at Seattle, Wash. Initial costs are established on an arbitrary differential over San Francisco, Calif.

Included in ocean freight are normal insurance rates, provision for charges for breaches of institute warranties, and tanker costs experienced by the Government (not necessarily published commercial rates). No allowance has been made for losses in transit, which always occur, or for excess freight costs, which sometimes result from loading at temperatures higher than standard.

Yours sincerely,

JULIUS H. AMBERG,
Special Assistant to the Secretary of War.

Computations based on figures supplied by the War Department

Canol project product	Production in barrels for year at 300 times estimated daily production ¹	Cost per barrel at Los Angeles plus freight to Skagway	Cost of obtaining equivalent product from Los Angeles	Cost per barrel at Arruba plus freight to Skagway	Cost of obtaining equivalent product from Arruba in West Indies
100-octane gasoline.....	112, 895	\$7. 40	\$835, 423	\$8. 548	\$965, 026
80-octane motor gasoline.....	351, 080	3. 476	1, 220, 354	4. 429	1, 554, 933
Diesel oil.....	134, 000	2. 451	328, 434	3. 525	472, 350
Fuel oil.....	93, 800	1. 970	184, 786	2. 938	275, 584
Total.....	691, 775	-----	2, 568, 997	-----	3, 267, 893

¹ Army estimates call for production for 300 days.

JUNE 17, 1944.

Hon. HAROLD L. ICKES,

*Petroleum Administrator, Petroleum Administration for War,
Washington, D. C.*

DEAR MR. ICKES: The committee has been examining the amount of the requested appropriations for operation and maintenance of the Canol project, and has been comparing the value of the products expected to be produced with the amount of operation and maintenance expense that would be required to obtain them.

In connection with that comparison, the committee would appreciate being informed as to whether the tanker situation at present on the Pacific coast is unusually tight, or whether it would be possible to obtain tankers sufficient to carry, between July 1, 1944, and July 1, 1945, the 753,725 barrels of usable products which the War Department estimates that it will obtain from the operation of the Canol project.

The committee also has inquired of the War Department as to the prices for the following products expected to be produced at the Canol project: Aviation gasoline (130 index rating), motor gasoline, Diesel oil, fuel oil.

The committee would appreciate any information which you have as to the prices for such products, together with the transportation costs by tanker from west coast ports to Skagway.

Very truly yours,

HUGH FULTON, *Chief Counsel.*

PETROLEUM ADMINISTRATION FOR WAR,
Washington, D. C., June 23, 1944.

Mr. HUGH FULTON,

*Chief Counsel, Special Committee Investigating the
National Defense Program, United States Senate.*

MY DEAR MR. FULTON: Referring to your letter of June 17, H-617-F, on the subject of appropriations for operation and maintenance of the Canol project:

The tanker situation generally is tight and, on the basis of projected world-wide requirements, will apparently remain so for some months to come. Of course, tanker availability is directly related to the tempo of war in the various theaters, but so far as we can see now, in the light of such estimates as we have of military demand, there will be but little tanker margin over any of the period you mention.

The volume of product equivalent to the output of the Canol project is relatively small, and its transport from California to Alaska would require the continuous service of only a fraction of one tanker. From that standpoint, therefore, the problem would not be great. It is, however, the comparative insignificance rather than the over-all tanker position which would make feasible the handling of this volume by water transport from California rather than via the Canol project.

As to prices and freight rates: There is set forth below the approximate prices of military petroleum products at the port of San Pedro, Calif., and also the tanker freight rates from San Pedro to Skagway as published by the War Shipping Administration.

Products	Approximate price per barrel (42 gallons) f. o. b. refineries San Pedro	Tanker rate per barrel (42 gallons)	Total price product plus tanker rate
Aviation gasoline (100 octane).....	\$6.720	\$0.481	\$7.201
Motor gasoline (80 octane).....	2.835	.481	3.316
Diesel oil (7-0-2).....	1.800	.500	2.300
Fuel oil (Navy special).....	1.265	.556	1.821

Sincerely yours,

RALPH K. DAVIES,
Deputy Petroleum Administrator.

[Reprinted from Congressional Record, June 21, 1944]

Mr. FERGUSON. Mr. President, last evening I was speaking on a subject on which I wish to continue today. As we all know, each year the War Department submits to the Congress a request for an immense and staggering number of billions of dollars, and each year toward the end of the session we are told that it is necessary to rush through an appropriation about which the Congress necessarily can have little understanding, in order that the War Department may continue its most essential and necessary operations. Today we are considering a bill proposing to appropriate the staggering sum of \$49,000,000,000. The bill is 64 pages long, and the Canol project presents an interesting example of how little information the War Department actually furnishes the Congress and how easy it is for War Department officials to obtain appropriations for their favored projects, whatever their merit or lack of merit may be.

A Senator diligently studying this 64-page bill would find an utterly meaningless item for the Corps of Engineers, of approximately \$1,800,000,000.

If he were a member of the Appropriations Committee of the Senate and had sufficient time to do so, he could go over 10 volumes of so-called detail presented by the War Department. In all those 10 volumes he would not find one single, solitary reference to the Canol project, for which \$16,439,688 is sought to be appropriated.

What he would find would be a one-line request for \$34,250,000 for the Northwest Service Command, and even that would be marked "secret."

The War Department explains that it never intended to call the Canol project, the ill fame of which is known to the entire country, secret, but that there were other secret items with respect to the Northwest Service Command which led it to classify the entire requested appropriation as secret.

If the Senator were insistent upon going into the matters referred to as secret—and we all hesitate to do so because of our great desire not to take any chance of assisting the enemy—and if the Senator were to make specific inquiry with respect to a project such as the Canol project, he would find that the War Department representatives had with them at the hearing a volume. A careful examination of that volume would disclose a half page of generalized figures with respect to the Canol project. This is what he would find upon that page:

Canol:

Maintenance.....	\$8,066,158
Operation.....	8,373,530

Total	16,439,688
-------------	------------

Segregating the above Canol figures, the following division can be made:

	Refinery, access roads, crude line oil field	Distribu- tion lines and flight strips
Operation	\$6,326,540	\$2,046,990
Maintenance.....	5,705,920	2,360,238
Total	12,032,460	4,407,228

The total of \$12,032,460 is made up as follows:

	Maintenance	Operation
Production facilities at Norman Wells.....	\$708, 070	\$2, 843, 720
587 miles crude pipe line to Whitehorse.....	1, 334, 740	1, 167, 540
528 miles service roads along pipe line.....	2, 684, 010	-----
Refinery at Whitehorse.....	969, 100	2, 315, 280
Total.....	5, 705, 920	6, 326, 540

Obviously these figures are themselves mere generalizations, because they do not indicate how many thousand tons of supplies and how many thousands of men will be required for this operation, or what other operations will have to be sacrificed in order to provide the supplies and men. The Truman committee went into Canada and Alaska and made an investigation of this matter. Therefore, as a member of that committee, I am familiar with the country and the hardships to which men are subjected in order to maintain these roads and pipe lines, as well as the amount of food and equipment essential to be taken there. When we speak of spending \$16,000,000 in that region, it means that there must be transported to that area many thousands of men, when we have a manpower shortage in the United States—at least, one is claimed—and a shortage of food, not only for ourselves, but for our allies.

It is proposed to spend \$16,000,000 in that region in an effort to provide oil. Mr. President, the procuring of that oil is not a military secret. The Army itself hired men to write magazine articles about it. They were on the pay roll of the United States.

Even if we knew how many men and how much supplies would be required, the figures would still be meaningless unless we happened to know, as I do, and as the Truman committee knows through its detailed investigation of the Canol project, how many barrels of oil are expected to be obtained, and how much the Army is paying to obtain an equivalent quantity of oil elsewhere.

Nowhere in the reports submitted to the Congress will there be found any estimate of how much labor or materials is required, or how much oil will be produced. The project is not a military project but an oil-producing project, and it cannot possibly be understood unless we know how much oil, and what kind of oil products are going to be obtained, and how much it would cost to procure the equivalent from other sources.

That is the reason why the Office of the Petroleum Administrator for War should have been consulted with respect to this project. I think it is disgraceful that the War Department should bullheadedly insist on disregarding the Government's experts on oil matters.

In December an Executive order was issued by the President of the United States naming Mr. Harold Ickes as Petroleum Administrator for War. It is significant in this particular case that when the project was started General Somervell acted upon it on the basis of a one-page memorandum. Nowhere in the history of this project can the Truman committee find that the Petroleum Administrator for War, Mr. Ickes, who is the Government's expert, was consulted. We are asked to appropriate \$16,000,000. Up until today, in the preparation of the figures, those who are skilled in the production of oil, and should know what it costs to produce oil, have not been consulted.

Mr. President, why have they not been consulted? The reason is that they have not favored this project. It seems that if one does not favor a project, and may be considered a critic, he is not consulted. Only those who are "yes" men are consulted. I believe that when such appropriations are requested the Senate should require the departments of Government which may be considered critics to give us the facts. The experts in the Government should be consulted not only by the Army, but by the Senate.

The Truman committee has obtained from the War Department its estimates of how much aviation and truck gasoline and Diesel oil and fuel oil it expects to produce. Time alone will tell whether those estimates are realistic. If we vote this appropriation we take that chance.

Furthermore, those estimates include products some of which will necessarily be used to operate the Canol project. We cannot spend \$12,000,000 to maintain highways, pipe lines, and other facilities for the Canol project without using

large quantities of gasoline and other oil products. The oil products for which we are paying \$12,000,000 for operation and maintenance are not the total production, but rather the total production less all the gasoline and oil used in connection with that portion of the Canol project. In other words, we will find that great amounts of gasoline and oil produced from those very wells will be used to maintain the wells and to keep the roads open, for they are located in territory where the temperature drops to as low as 70° below zero. The actual amount of oil products which will go to help the United States Government in the war effort will be very small.

The War Department was asked to furnish the Truman committee with information about the number of thousands of barrels of various oil products which would have to be used for the operation and maintenance of the Canol project. As yet it has not done so.

However, if we assume that every barrel of oil it is hoped to obtain is obtained, and if we assume, contrary to fact, that none of the oil is used in operation or maintenance of the Canol project, we still find, on the basis of the War Department's own figures, that we could buy an equivalent amount of products at Los Angeles and freight them to Skagway for \$2,568,997. Or if we wanted to buy them at Aruba, in the West Indies, where oil supplies are more plentiful than on the west coast, we could buy them and freight them to Skagway for \$3,267,893.

Up until now, so far as aviation gasoline is concerned, every gallon of gasoline has had to be sent to that northern area by water. Therefore, up until the present time, we have obtained no products for the war effort from this expenditure of manpower in an area where men have to work hard. Let me say that the records of the House show that the men who work there are guaranteed 240 hours a month, regardless of whether they work that long a time. If they work more than that, they are paid on the basis of time and a half, as the case may be. I do not criticize men who must work in temperatures ranging as low as 70° below zero for wanting that much pay or for consuming the great amount of food they need. But the fact is that this project was undertaken on the basis of a one-page memorandum, and the Petroleum Administrator for War was not consulted to ascertain whether the project was a worth-while one to undertake while this country was fighting for its life. In other words, if we write off and throw away entirely the \$130,000,000 investment, which is what the Canol project has cost thus far, plus another \$140,000,000 for the highway—and it has been said that the highway is necessary because there are airfields which are approximately from 100 to 250 miles apart—it may be that we will save in the end.

Incidentally, if it be true that the highway is necessary, then I ask the War Department why in Alaska, a territory which is owned by the United States of America, we find no highway between Fairbanks and Nome, although they are 500 miles apart. Let me say that from Fairbanks to Bethel—and I have been to the airfield there—is a distance of approximately 500 miles, and on the trip between those two places the route crosses another airport known as McGraw. Yet no highways are built between those airfields in that country which is owned by the United States. But let me say that in Canada we find the airports linked by highways; and, Mr. President, we find that in linking them the thought is kept in mind that they are in Canada and will provide for future summer resorts—indeed, log cabins are being built. I myself have seen them. I think the time has come when, because we have battles to fight, we should not be thinking of post-war projects in Canada, but should be thinking about winning battles for America.

Mr. President, those in charge of the construction of this project on the basis of cost-plus-a-fixed-fee contract would not go to Whitehorse to live. They made their headquarters at Edmonton—which is 1,000 miles from Whitehorse—because Edmonton is a larger city. Then the United States Air Force was used to transport the executive officers back and forth over that 1,000 miles. Can we conceive of having such a thing done in time of war?

Mr. President, on the basis of cost-plus-a-fixed-fee contract they built a redwood palace. As we came from Alaska and Canada the soldiers, who had worked under great hardships, said to us, "Will you look over the redwood palace down at Edmonton?" It is an office building which we had erected there at a cost of \$192,000. Eventually it will be turned over to the owner of the land and we will even have to spend \$4,000 to put stucco on it, after the war is over. Mr. President, in order to house those who were going to help do that job, they took over a seminary, and spent \$920,000 in remodeling it as living quarters for the officers and employees who were in Edmonton, doing a job on a cost-plus-a-fixed-fee

contract basis, instead of going to Whitehorse or to Norman Wells, where the work was actually being performed.

Those are the things of which the general who was in charge and the Army say they are proud. It was in connection with those matters that General Somervell, the general in charge, said, in speaking about a check, "What difference did it make? They all use the same size paper." That is the kind of project we are now considering.

In other words, as I have said, if we write off and throw away entirely the \$130,000,000 investment, and do not charge ourselves 1 cent of amortization or depreciation, the mere cost of operating and maintaining this refinery will be from four to five times the value of the products obtained. This is the Canol project of which the War Department states it is proud.

Although this is the detail or lack of detail which was furnished to the Congress when appropriations were requested, we all remember the publicity that was given a month or so ago when the refinery began to produce a little motor-truck gasoline, and the very lengthy fanfare with which we were told that the contracts made with Canada and the Imperial Oil had been revised so that we would have available to us a pool of 60,000,000 barrels of oil. This new contract, which deals with the production of oil for the United States, until 2 hours ago had never been furnished to the Petroleum Administrator for War, Mr. Ickes, or to his office. If they wanted to get any information, they had to obtain it from newspaper clippings or elsewhere.

So, again I say it is time for us to use every ounce of effort in the fight to win the war and every ounce of energy and of judgment which may be available in our various departments. Criticism may be valuable, for a critical attitude may result in the prevention of considerable loss.

I wish to call attention to the fact that even with respect to that negotiation, and despite the recommendation of the Truman committee that the Petroleum Administrator for War be consulted on all points, the War Department did not even take up the question with the oil experts of the United States Government.

Of course, there is no guaranty that 60,000,000 barrels of oil can actually be obtained. The senior Senator from Texas, Mr. Connally, yesterday evening called my attention to the fact that 60,000,000 barrels of oil would be obtained. We must remember that they have a proven well from which they anticipate obtaining 30,000,000 barrels of oil. They have an unproven field from which they anticipate obtaining an additional 30,000,000 barrels of oil. The latter field has not been tapped; they have no knowledge as to whether it has oil or whether it has 10,000,000, 30,000,000, 60,000,000, or any other number of barrels of oil. What we have to consider here and now is the question of what it will actually cost us to obtain those 60,000,000 barrels of oil, over and above what we would pay Canada and the Imperial Oil. I have not mentioned the 15 cents a barrel which we must pay to Canada for every barrel of oil that is taken out of there.

Under the requested appropriation it would cost us more than \$4,000,000 a year merely to maintain the pipe line and its access road. It would require the limit of capacity of the pipe line for 60 years in order to transport 60,000,000 barrels of oil. If we acquired the oil for nothing, and if it cost nothing to produce it, nothing to refine it, and nothing to transport the finished products to market after they had been refined, the oil would still cost us \$240,000,000.

Mr. President, I have computed that if we take into consideration all the products which have been anticipated, and consider the cost of maintenance and operation of equipment, the cost of the oil will be approximately \$9 a barrel. We know what has been said on this floor relative to the price at which oil is sold to this country, and the O. P. A. will not allow the price of it to be increased 35 cents. The price is now down to approximately \$1.17 a barrel. I believe that was the figure which was named. But if we compute the figures which have been given, we arrive at a cost of \$9 a barrel.

The only possible justifications which have been suggested by the War Department are a shortage of tankers, a shortage of the product on the west coast, and a desire to prove up this project for future use. One tanker has been mentioned as making trips back and forth. When we are talking about one tanker, as compared to the total number of tankers in this country, it is to speak only of a small drop, as it were, compared to the amount of oil which is produced and transported by this country.

The argument that this field should be proved up for future use does not mean much. I do not believe that very many people will be interested in paying \$12,000,000 a year for maintenance and operation of this kind of a project. The true meaning of the item is that we do not even yet know anything about operations

in this area, and we may find our hopes for the production of oil vastly greater than the actualities will warrant.

Mr. President, I do not present these facts with the idea that the Senate today should delete the requested appropriation. I understand that the Joint Chiefs of Staff have assumed responsibility for handling the funds, and I do not desire in any way to preclude them from obtaining what they ask for, because we want to win the war. But, Mr. President, the responsibility, which they agree to assume is one for which they will have to answer after the veil of secrecy has been lifted. I, for one, am now giving notice that when that veil of secrecy shall have been lifted I shall want to know, in behalf of the people of this country, and in a detailed way, why those to whom I have referred assumed such responsibility at such a critical time.

Next year we may have a similar request made to us to continue this boondoggling project. I think we should scrutinize any such request in great detail. I have referred to the Canol project at considerable length because I desired to call to the attention of the Senate the fact that we know very little about the actual use to which the War Department intends to place the \$49,000,000,000 which it has requested of the Congress.

Mr. President, so far as strategy is concerned, and so far as guns and cannon are concerned, we want the War Department to get everything it needs; we feel the same about supplies; but we believe that the War Department should consult every available expert in regard to the matters involved, and that it should be willing to consider facts in connection with a project of this nature, which is not a military secret at all, and which has nothing to do with the military program except in its use of many of our soldiers and our civilian population.

Last year, when the War Department made a similar request, several Members of the Senate called attention to the fact that we knew very little about the project for which the money was to be used. It was stated this year that reliable information would be furnished on which we could act. The whole Canol project grew out of a one-page memorandum from General Somervell, who was anxious to preserve paper, and the congressional authorization was for an item of \$25,000,000, which was buried in one of the huge appropriation bills. That \$25,000,000 item has since grown to \$134,000,000 for the purpose of construction, and we are now being requested to appropriate more than \$16,000,000 for operation and maintenance. The request is one which we may receive each year for the next 60 years if we are to obtain the 60,000,000 barrels of oil of which the War Department is so proud.

Mr. THOMAS of Oklahoma subsequently said, Mr. President, earlier today the junior Senator from Michigan [Mr. FERGUSON] discussed at some length the so-called Canol project in Canada and Alaska. I do not desire to make any reply to the statement submitted by the junior Senator from Michigan, but I do ask permission to have printed in the Record immediately following the address of the junior Senator from Michigan a letter from the Under Secretary of War, Mr. Patterson, which states the viewpoint of the Army with respect to the matter discussed by the junior Senator from Michigan.

The PRESIDING OFFICER. Without objection, it is so ordered.

The letter is as follows:

WAR DEPARTMENT,
OFFICE OF THE UNDER SECRETARY,
Washington, D. C., June 21, 1944.

Hon. ELMER THOMAS,
United States Senate, Washington, D. C.

DEAR SENATOR THOMAS: In the consideration of H. R. 4967, the Military Establishment appropriation bill, some objection was made on the floor of the Senate last night to that part of the Engineer Service appropriation providing for the operation and maintenance of the Canol project during the ensuing fiscal year. The total appropriations sought for such operation and maintenance, exclusive of the operation and maintenance of the distribution lines between Skagway, Whitehorse, Fairbanks, and Watson Lake, is \$13,235,608, which includes the production of crude oil at Norman Wells, operation and maintenance of the crude pipe line from Norman Wells to Whitehorse, and the operation and maintenance of the refinery at Whitehorse, as well as the road from Norman Wells which parallels the pipe line and the maintenance of flight strips along the Mackenzie River.

While the Truman committee criticized our undertaking of this project, it did not recommend that it be abandoned but stated that the decision as to whether the project should be abandoned should be made by the War Depart-

ment in the light of whether equitable arrangements could be completed with Canada and Imperial Oil, Ltd., for suitable rights in the project. Such new arrangements have been made whereby in addition to obtaining oil for the war at a greatly reduced price, we have obtained an option to obtain up to 60,000,000 barrels at a net price of 15 cents a barrel, plus cost of production, for post-war use. The completion and operation of Canol has been determined by the Joint Chiefs of Staff to be a military necessity.

The project is now in full operation except for the final stage of manufacturing 100-octane gasoline and this also will be in operation in a few weeks.

It is idle to contend that the petroleum products, including 100-octane gas, could be obtained more cheaply on the Pacific coast where our supply is inadequate or from Aruba. We have neither tankers for its transportation to Skagway nor 100-octane gasoline in sufficient supply. The greatly stepped-up air force operations in support of our troops in Normandy is taxing our supply of aviation fuel to the limit, not to mention demands in other theaters throughout the world.

The Canol project will supply 100-octane gas and other petroleum products, where needed, along the Alaskan Highway and for airplanes being transported to theaters of operation. The project has been completed in light of the considerations left to our determination by the report of the Truman committee. After we have completed Canol, in pursuance of that report's recommendation, it would be folly not to make use of these facilities in supporting our Army.

To abandon use of this means of obtaining aviation and other fuel, where needed, after all that has been done to date to assure this necessary supply, should be unthinkable.

I hope that the Senate will follow the action of the House of Representatives where the matter was fully considered in committee by authorizing the inclusion of the item in our appropriation bill.

Yours sincerely,

ROBERT P. PATTERSON,
Under Secretary of War.

* * * * *

Mr. BALL. Mr. President, the junior Senator from Michigan [Mr. FERGUSON] has discussed the Canol project at some length. I understand from him that no amendment to eliminate the project from the pending bill is to be offered. I think that is a wise decision. At this late hour, obviously it could not have the consideration which it should have. However, before the amendment is adopted I desire to express my general agreement with the statement made by the junior Senator from Michigan.

I sat on the Truman committee during the whole investigation of the Canol project and while the original intent of finding new sources of oil unquestionably was sound, I think the evidence we collected demonstrated that long after the feasibility and wastefulness of the project from an economic point of view had been proved the War Department insisted on bulling it through regardless of cost. It is true that there is a tremendous amount of waste involved in fighting a war, but it seems to me that when the usefulness of a given project has been demonstrated, as it has been demonstrated in the case of this project, there is no excuse for going on with it.

I merely want to add that, as a member of the Appropriations Committee, I hope that next year this bill will come to the Senate soon enough so that the committee may really dig into this particular item.

Mr. WILLIS. Mr. President, will the Senator yield?

Mr. BALL. I yield.

Mr. WILLIS. Can the Senator inform me whether there was ever a specific appropriation by the Congress for the Canol project?

Mr. BALL. I understand there was an item of \$25,000,000 in an appropriation bill 2 years ago.

Mr. WILLIS. The total amount expended to date approximates what sum?

Mr. BALL. The amount is approximately \$135,000,000, as I recall.

Mr. WILLIS. So it is revealed that, regardless of whether Congress makes the appropriations, these wasteful projects go on?

Mr. BALL. As the Senator knows, since the beginning of the war military appropriations have been lump-sum appropriations, with very wide latitude in the expending agencies.

Mr. WILLIS. And this shows the wisdom of giving a little more specific attention to and providing limitations on some of these appropriations.



INDEX

	Page
Abasand Oil Co.....	9849-9850
Acme Pictures Co., Inc.....	9549
Adams, H. H.....	9868
Afghanistan.....	9666
Africa.....	9500, 9567, 9581, 9603, 9683
Agriculture, United States Department of.....	9563
Alaska.....	Appears throughout
Alaska Highway Commission.....	9855
Alaska Highway project. (See Alcan Highway.)	
Alaska Military Highway.....	9307, 9361, 9551
Alaska Railroad.....	9361, 9545
Alaskan Defense Command.....	9291, 9295, 9316, 9431, 9446, 9474, 9628, 9694
Alcan Highway.....	9288,
	9290, 9292, 9301, 9318, 9339, 9344, 9363, 9374, 9396, 9399, 9431,
	9472, 9474, 9479, 9488, 9498, 9512, 9551, 9555, 9563, 9565-9566,
	9574, 9579, 9582, 9597, 9599, 9626, 9632, 9659, 9662, 9664, 9694,
	9697, 9827, 9830, 9860-9862, 9867-9886, 9901-9908, 9913, 9917-
	9920, 9924-9925, 9935.
Aleutian Islands.....	9296,
	9340, 9353, 9395, 9432, 9487, 9496, 9507, 9548, 9551, 9597-9598,
	9607, 9619, 9687, 9694, 9705, 9707, 9874, 9876, 9881, 9900.
Alvarado (steamship).....	9685
Amberg, Julius H.....	9361, 9407, 9842, 9857, 9908, 9910, 9916, 9918, 9924-9928
American Geographical Society.....	9883
American Institute of Mining and Metallurgical Engineers.....	9383
American Magazine.....	9666
American Society of Civil Engineers.....	9383
Anne Hanify (steamship).....	9685
Appropriation Act, 1942, Sixth Supplemental National Defense.....	9732,
	9778-9779, 9823
Appropriations, United States House of Representatives, Committee on.....	9424,
	9559-9560
Appropriations, United States Senate Committee on.....	9424,
	9559-9560, 9925, 9930, 9935
Arabia.....	9666, 9670, 9704
Army and Navy Petroleum Board (Joint).....	9341,
	9483, 9502, 9631, 9648, 9665, 9701, 9713, 9716, 9900, 9911
Army Expeditionary Forces.....	9381-9382, 9578
Liquidation Commission.....	9382, 9574
Army, United States. (See War Department).....	Appears throughout
Alaska Base.....	9843
Facility Review Committee.....	9874
Arnold, Gen. Henry H.....	9602, 9661
Asia.....	9871
Associated Press.....	9550
Australia.....	9492, 9597, 9603, 9625, 9659-9660
Bahrain Petroleum Co.....	9666, 9879
Baker, N. E.....	9883
Ball, Senator Joseph H.....	9935
Ball, Max.....	9850
Bareco Refinery.....	9310, 9379, 9701-9702, 9891
Bechtel-Price-Callahán.....	9324,
	9363, 9372, 9558-9561, 9620, 9707, 9754, 9761-9763, 9840-9842, 9889
Bechtel, S. D.....	9620, 9696, 9889
Bimel, F. B.....	9374, 9413, 9455, 9480, 9516, 9842-9845, 9858-9859

	Page
Bixby, Harold	9411
Boggs, O. D.	9851-9852
Brady, James F.	9287, 9324
Breen, Colonel R. J.	9411
Brewster, Senator Owen	9908
Bright, J. S.	9868
Brintnell, Leigh	9880
British Columbia	9288, 9348, 9581, 9645, 9719, 9728, 9919
British Government	9548
Brock, Earl	9659
Browne, Brig. Gen. Frederick W.	9408, 9411, 9653, 9860-9861
Brownell, Col. G. A.	9423
Browning, Col. Albert J.	9745, 9791, 9808
Buckner, Maj. Gen. S. B.	9431
<i>Brunswick</i> (steamship)	9685
Budget, United States Bureau of the	9358,
9371, 9422-9423, 9535, 9572, 9620, 9696-9698, 9861-9862, 9890, 9908	
Assistant Director of	9865
Director of	9370, 9550-9562, 9865-9867, 9900
Burma	9670, 9683
Byrnes, James F.	9553, 9665, 9867
Camsell, Dr. Charles	9849
Canada	Appears throughout
External Affairs, Department of:	
Secretary of State for	9830-9836
Foreign Exchange Control Board	9773
Geological Survey	9846-9847, 9850-9854
Mines and Resources, Department of	9379, 9849
Oil Controller	9864
Transportation, Department of	9867
Canadian Government	9312-9313,
9315, 9317, 9321, 9347-9452, 9355-9356, 9379, 9405, 9457-9458, 9465,	
9471, 9529, 9536-9539, 9542-9543, 9546-9550, 9569, 9582, 9593, 9603,	
9657, 9670, 9672-9673, 9703, 9827-9836, 9850, 9878, 9880, 9887, 9894,	
9918-9920.	
Canadian National Railways	9378, 9386, 9886
Canadian Northern Railway	9880
Canadian Pacific Airlines	9855, 9867, 9880
Canadian Pacific Railway	9288, 9385, 9569, 9855, 9880-9881, 9886
Canadian Unemployment Insurance Act	9828
Canol, Camp	9306-9307, 9361, 9927
Canol projects	Appears throughout
Carpenter, Maj. William T.	9888
Carter, Maj. Gen. Arthur H.	9374,
9387, 9398, 9403-9405, 9421, 9452-9453, 9461-9462, 9472, 9474,	
9479-9480, 9484-9485, 9502-9503, 9510-9513, 9518, 9526, 9580, 9600,	
9609, 9629, 9645, 9652, 9674, 9691, 9842-9843, 9845, 9855-9861, 9889	
Chandler, Senator Albert B.	9575
China	9638, 9880-9881
Civil Aeronautics Administration	9569, 9873, 9883
Civilian Conservation Corps	9868-9869, 9872, 9886
Clark, Lewis	9834, 9836
Clifford, Lt. Col. C. M.	9744, 9763, 9765
Coghill, Robert W.	9552, 9696, 9861-9862, 9866-9867, 9890, 9900, 9902
Commerce, United States Department of	9563
Congress, United States	9424, 9550,
9559, 9566, 9628, 9656, 9667, 9750, 9777, 9804, 9876, 9924, 9931-9935	
Congressional Record	9499, 9547, 9930, 9934
Connally, Senator Tom	9933
Continental Roll & Steel Foundry Co.	9873
Covell, Brig. Gen. W. E. R.	9337, 9357, 9360
Coy, Wayne	9863-9867, 9900
Crawford, Gen. D. M.	9659, 9674, 9677, 9690
Curran, Charles D.	9552, 9554, 9861-9862, 9867, 9900-9902, 9905
Curran (Charles D.) report on Canol project	9358
Daniels, Lt. Col. Willis F.	9827

	Page
Davies, Ralph K.....	9530, 9534-9540, 9609, 9613-9615, 9866, 9914, 9930
Dawes, General.....	9382
Dawson, Fort.....	9291
Defense, Permanent Joint Board on (United States and Canada).....	9313
Defense Plant Corporation.....	9874
9350-9351, 9603, 9671, 9704, 9827, 9831-9836, 9880	
Defense Transportation, Office of.....	9872, 9904-9905
Delano, Col. Frederic A.....	9382, 9384, 9386-9387, 9403-9404, 9575-9576, 9601, 9878
Dillon, Brig. Gen. L. S.....	9875
Dimond, Anthony J.....	9499, 9573, 9654
Dodd, Samuel M.....	9866
Dominion Oil Co.....	9307, 9316
Dominion workmen's compensation law (Canada).....	9730
Duce, Terry.....	9883-9884, 9908
Dutch East Indies.....	9598, 9660
Dutch Harbor.....	9295
Eames, C. A.....	9807
East Indies.....	9670
Easterwood, Maj. O. P., Jr.....	9337, 9356, 9791, 9807, 9924
Eberstadt, F.....	9874
Economic Warfare, Board of.....	9374-9375, 9387, 9413, 9418, 9484, 9502, 9552, 9600, 9609, 9842, 9845, 9858-9859
Egerton, T. F.....	9807, 9897
Ells, S. C.....	9850
Evans, J. M.....	9744, 9765
Falow, W. A.....	9848-9849
Federal Bureau of Investigation.....	9383
Federal Deposit Insurance Corporation.....	9814
Federal Reserve Act.....	9814
Federal Reserve Bank.....	9387
Federal Reserve System.....	9798, 9814
Federal Works Agency.....	9563
Ferguson, Senator Homer.....	9857, 9903, 9930, 9934-9935
Finney, Richard.....	9627-9628, 9883
Fitzgerald, Fort.....	9302
Forbes, C. C.....	9824-9826
Foster, G. M.....	9733, 9744, 9751-9753, 9763-9765, 9780
France.....	9373, 9382, 9387, 9573-9574, 9595, 9600, 9678
Friedlich, Lt. Col. H. A.....	9337, 9483, 9526, 9827, 9840-9842, 9912, 9916
Frits, Dr. F.....	9700
Fulton, Hugh.....	9840, 9857, 9908, 9911, 9916, 9918, 9924-9929
Gaffney, Col. Joseph.....	9298
Gallagher, —.....	9547
Gavin, Representative Leon H.....	9527, 9546, 9573, 9627
General Motors Corporation.....	9629
General Steel Castings Corporation.....	9874
"Geographical Review".....	9883
Geological Survey, United States.....	9538, 9569-9570, 9634, 9662, 9854-9855, 9883
Germany.....	9339, 9599, 9706
Gesler, Col. E. E.....	9860
Glenn, Capt. Martin R.....	9895
Good Hope, Fort.....	9846
Government, United States.....	9331, 9345-9348, 9350-9351, 9355, 9364, 9366, 9368-9369, 9378-9379, 9385, 9457, 9469, 9472, 9500, 9533, 9537-9538, 9546, 9561, 9582, 9592, 9603, 9632, 9650, 9655, 9673, 9692, 9715.
Grafe, Paul.....	9287
Graham, Col. J. H.....	9373-9375, 9378, 9408, 9411-9413, 9420, 9422, 9426, 9428-9430, 9432, 9449-9450, 9453, 9461-9462, 9474-9476, 9480-9481, 9484, 9494, 9502, 9510-9515, 9519, 9523-9524, 9599-9600, 9605, 9613-9617, 9622-9623, 9632, 9638, 9643-9644, 9653-9654, 9659-9660, 9667, 9674-9680, 9687-9688, 9692-9693, 9695, 9697-9701, 9843-9845, 9858-9859.
Great Britain.....	9704

	Page
Greyhound Lines	9499
Guam	9666
Gulf Oil Corporation	9375-9377, 9463, 9520-9524, 9600, 9604, 9631, 9634-9635, 9649
Haifa	9901
Hake, Maj. Benjamin F.	9337, 9366, 9373
Hall, H. H.	9837
Halley, Rudolph	9827, 9842, 9857, 9912
Hamilton Power Plant	9910
Handy, Maj. Gen. Thomas	9693, 9907
Hanna, J. L.	9733, 9738, 9744, 9751-9756, 9763-9765, 9780, 9890, 9892
Hardin, Capt. C. C.	9843-9845
Harford, General	9382
Harrison, Gen. W. H.	9565, 9874-9875
Haskins & Sells	9427-9428, 9600, 9652
Hawaii	9598, 9666
Heileman, Col. F. A.	9888
Hitler, Adolph	9535, 9706
Holman, Eugene	9412-9413, 9452, 9472, 9653, 9846, 9883-9884
Holt, Edgar	9826
Holtz, _____	9838
Hopkins, Oliver B.	9846
Horne, Admiral F. J.	9541
Houdry process	9310, 9341, 9369-9370, 9555-9556, 9685, 9865, 9871-9872, 9901
Houston, Sam	9334-9335
Hudson Bay Co.	9465, 9530, 9847, 9880
Humble Oil Co.	9659, 9675
Hume, Dr. G. S.	9854
Hunn, S. S.	9751
Hunter, Lt. Col. W. A.	9867
Ickes, Harold L.	9340
	9360, 9379, 9391, 9398, 9418-9419, 9509-9510, 9512, 9547-9550, 9553, 9564, 9570, 9593, 9609, 9615, 9627, 9637, 9662, 9675, 9686, 9693- 9694, 9702, 9706, 9708-9709, 9714, 9790, 9866, 9908, 9915, 9929-9931, 9933.
Imperial Oil Co., Ltd.	9307, 9311-9313, 9315, 9319, 9334, 9342, 9345-9347, 9351-9352, 9354-9356, 9363-9364, 9367-9368, 9372, 9374-9378, 9387, 9405, 9413, 9419, 9421- 9422, 9429, 9435, 9438-9439, 9444-9445, 9450-9473, 9480-9481, 9484, 9502, 9523-9526, 9534, 9536-9537, 9539, 9542, 9546, 9569-9571, 9580, 9584-9585, 9589, 9591-9594, 9599-9600, 9603-9605, 9609, 9618, 9632-9635, 9638, 9641, 9653, 9670-9675, 9695, 9697-9698, 9703, 9714- 9715, 9790-9791, 9795, 9801, 9807, 9840-9846, 9849-9862, 9882-9883, 9393-9895, 9897-9899, 9902, 9908-9910, 9912, 9917-9921, 9924, 9933- 9935.
India	9603, 9699
Indian Refining Co.	9700
Inland Passage	9597, 9625
Interior, United States Department of the	9398, 9528, 9542, 9563, 9667, 9669
Fuel Oil Division	9509
Mines, Bureau of	9377, 9386, 9406, 9662-9663, 9921
Secretary of	9509, 9527, 9599, 9601, 9610, 9625-9626, 9706, 9908
International Petroleum Co., Ltd.	9452
Iran	9663
Iraq	9666
Italy	9581, 9683
Jadwin, General	9382
Japan	9340-9341, 9602, 9607, 9705, 9880
Japanese Navy	9595, 9598
Johns, P. M.	9826
Johnson, Gov. Keen	9575
Johnson, Sidney	9837
Johnston, Col. J. B.	9287
Jones, Hon. Jesse	9845
Kaler, Naomi	9824

	Page
Keele, Joseph	9847, 9851
Keenleyside	9832
Kennedy, Capt. John A.	9911
Kennedy, Commander W. John	9287
Kilgore, Senator Harley	9908-9910, 9913
King, Admiral Ernest J.	9602
King, W. L. Mackenzie	9835
Kitcherman, Col. Raymond F.	9302
Knowles, Col. M. H.	9287
Knox, Hon. Frank	9915
Kuwait	9666
Labor, United States Department of:	
Secretary of	9820
Ladd Field	9291, 9295
Lambright, Paul	9287-9288, 9850
Land, Admiral Emory S.	9658
Leahy, Admiral William D.	9340, 9535, 9602, 9789, 9900
Leavey, Col. Edmund H.	9397, 9405
Legation of the United States of America (Ottawa)	9829-9830, 9834
Le Sueur, R. V.	9419, 9454, 9504, 9518, 9520, 9526, 9585, 9857, 9889, 9897, 9899, 9924
Letcher, B. L.	9755-9756
Lewis, Fulton	9700
<i>Lexington</i> (steamship)	9493
Link, Dr. Theodore A.	9387, 9404, 9406, 9850, 9853
Lloyd, R. A.	9411
Locke, Edward A., Jr.	9398, 9885
Lockridge, Lt. Col. Robert W.	9890
Longshoremen's and Harbor Workers' Compensation Act	9730,
	9736, 9776, 9782, 9828
Loscher, Rose	9824
Lowe, Brig. Gen. Frank E.	9287, 9407, 9451
Mackenzie Air Service	9848, 9880
Mac Kinnon, Ronald W.	9846
MacLeans, Canada National Magazine	9627, 9547
Manning, C. F.	9424-9425
Maritime Commission, United States	9563-9565
Chairman of	9564-9565, 9873-9875
Marshall, Gen. George C.	9448,
	9519, 9598, 9602, 9619, 9661, 9676, 9681-9682, 9686, 9694, 9699
McClave, —	9850
McConachie, Grant	9569-9570, 9880
McConachie Line	9880
McDonald, Col. Donald C.	9858
McGinniss, Lt. Comdr. John	9882-9883
McNair, Lt. Gen. Lesley J.	9661
McPherson, Fort	9849
Mexico	9657
Midway Island, Battle of	9598
Military Affairs, United States Senate Committee on	9353
Military Appropriations Act, June 30, 1941	9752
Military Establishment appropriation bill, Seventy-eighth Congress	9934
Miller, Max B.	9540
Moffat, Pierrepont	9828-9832
Moore, Senator E. H.	9655
Moore, L. L.	9755
Moreell, Admiral B.	9875
<i>Morlen</i> (steamship)	9685
Moses, Brig. Gen. R. G.	9902
<i>Mount Baker</i> (steamship)	9685
National Defense Program, United States Senate Committee Investigating	9421-
	9422, 9425, 9434, 9526, 9827, 9842, 9857, 9908, 9911-9913, 9916-9918,
	9924-9934.
National Guard (Texas)	9631-9632, 9644

	Page
National Resources Planning Board-----	9438, 9569, 9845, 9859, 9878
Alaska Regional Office-----	9413
Chairman of-----	9384, 9387, 9576, 9601
Natural Gas Association of America-----	9792, 9893
Navy Department, United States-----	9337,
9341, 9353, 9360, 9388-9390, 9404-9405, 9434, 9476, 9488-9489, 9492-	
9493, 9497, 9507, 9509, 9529, 9532, 9542, 9550, 9563-9564, 9570, 9593,	
9595, 9612, 9619, 9645-9647, 9665, 9671, 9690, 9703, 9716-9717, 9875,	
9878, 9887, 9903, 9908, 9911-9912, 9915.	
Chiefs of Staff, Joint-----	9509, 9535, 9541, 9590, 9602,
9603, 9613-9614, 9616, 9619-9622, 9631, 9648, 9665, 9912-9915, 9935	
Arbitration, Permanent Joint Board of-----	9704
Meteorological Committee, Joint-----	9569, 9881-9883
Production Review Committee-----	9553, 9648, 9912-9913
Naval Operations, Bureau of-----	9287
Chief of-----	9717, 9911
Research Laboratory-----	9921
Secretary of-----	9599, 9604, 9717
Office of the-----	9287
Under Secretary-----	9565, 9873-9875, 9883
Vice Chief of Naval Operations, Office of-----	9287, 9717
Needles, Col. E. R-----	9888
Nelson, Donald M-----	9398, 9562-9563, 9572, 9626, 9661-9662, 9873, 9879, 9915
Nelson, Fort-----	9293, 9362-9363,
9577, 9608, 9611, 9679, 9849, 9863, 9878, 9883-9883, 9903	
Neuberger, Capt. Richard-----	9287
New Bougainville-----	9492
New Caledonia-----	9492
New Guinea-----	9567, 9600
New, John Alfred-----	9807, 9897-9899
New York Herald Tribune-----	9549
New Zealand-----	9597, 9603, 9622, 9625, 9660-9663, 9374, 9676
Noble Drilling Co-----	9347, 9354,
9363-9365, 9367, 9457, 9649-9650, 9808, 9824-9826, 9840-9841, 9909,	
9912, 9917.	
Noble, Lloyd-----	9824-9826
Norman, Fort-----	9306, 9321,
9335, 9451-9453, 9466, 9527-9530, 9532-9533, 9545, 9597, 9676, 9845-	
9846, 9853-9855, 9863-9864, 9881, 9900-9903, 9919-9920.	
Norman Refinery-----	9467, 9910
North, -----	9829-9830
Northern Alberta Railways Co-----	9283, 9880, 9886
Northway Field-----	9306
O'Connor, Gen. J. A-----	9287, 9868-9869, 9872
Office of Price Administration-----	9933
Administrator of-----	9790
Oldfield, J. K-----	9897
Owens, J. M-----	9733
Paige, Sidney-----	9659
Pan American Airlines-----	9385-9386, 9411, 9480, 9578
Panama-----	9598
Panama Canal-----	9657, 9666
Parker, John M-----	9504
Parsous, Walter-----	9287
Patterson, Hon. Robert P-----	9338, 9427-9428,
9520, 9528-9531, 9565-9567, 9596, 9642, 9649, 9682, 9864-9866, 9873-	
9879, 9883, 9913, 9934-9935.	
Patton, Commander David L-----	9287
Peace River Bridge-----	9590-9591
Pearl Harbor-----	9293, 9339,
9384-9385, 9395, 9430-9431, 9476, 9491-9492, 9573-9575, 9598, 9676,	
9870, 9877, 9889, 9900.	
Peckham, Brig. Gen. Howard L-----	9337, 9357, 9526
Persia-----	9612, 9670, 9704

	Page
Petroleum Administration for War	9569, 9572, 9665, 9686, 9863, 9883-9884, 9900, 9908, 9912-9913, 9931-9933
Administrator of	9354, 9378, 9527, 9532, 9541, 9547, 9550, 9553, 9561, 9572, 9583-9584, 9592, 9598, 9609-9610, 9614, 9620, 9626, 9683, 9689, 9696, 9789-9790, 9863-9866
Deputy Administrator of	9530, 9914, 9930
Foreign Department	9783-9884
Petroleum Coordinator, Office of	9528, 9863, 9866
Coordinator, the	9373, 9378, 9510, 9525, 9536, 9607, 9632, 9701
Foreign Division	9849
Petroleum Rectifying Co. of California	9921
Petroleum Reserves Corporation	9666
Philippine Islands	9426, 9590
Pierson, Col. Albert	9874
Pogue, Welch	9883
Poland	9405
President, United States	9383, 9523, 9532, 9535, 9609, 9657-9658, 9694, 9703-9709, 9723, 9845, 9863, 9900, 9931
Executive Offices of the	9696, 9861-9862, 9866-9867
Public Act No. 781, Seventy-sixth Congress	9820
Public Law No. 703, Seventy-sixth Congress	9734, 9745, 9765, 9791, 9808, 9895
Public Law 139, Seventy-seventh Congress	9734, 9745, 9765, 9791, 9808, 9895
Public Law 208, Seventy-seventh Congress	9730, 9736, 9776, 9782-9783
Public Law 354, Seventy-seventh Congress	9734, 9743-9745, 9763, 9765, 9791, 9808, 9895
Public Law No. 734, Seventy-seventh Congress	9736, 9783
Public Roads Administration	9287, 9293-9294, 9335, 9557, 9868, 9872, 9878, 9885-9888, 9905-9906
Public Works Administration	9886
Public Works, Minister of (Alberta)	9848-9849
Puerto Rico	9666
Pyle, Maj. Howard C.	9337
Pyron, Brig. Gen. Walter B.	9337, 9374-9375, 9378, 9387-9388, 9391, 9404, 9413, 9422, 9462-9463, 9474, 9483-9484, 9517, 9580-9581, 9584-9593, 9600, 9604-9605, 9611, 9613, 9618, 9622, 9659-9660, 9674-9677, 9692, 9701, 9842-9845, 9857-9859, 9883, 9908
Quinn, Martin	9436
Randall, Robert	9848-9849
Redwood Building	9372, 9558, 9560-9561
Representatives, United States House of	9424, 9932-9935
Rettie, James C.	9413, 9843-9845, 9859
Reybold, Gen. Eugene	9448, 9765, 9791, 9898
Reynolds, George	9858
Richards, Maj. Gen. George J.	9924-9925
Richardson Highway	9290
Richardson, James	9880
Riley, H. W. E.	9287, 9883-9885, 9888
Robertson, M. A.	9832-9834
Robins, Maj. Gen. T. M.	9397, 9411, 9433-9434, 9448, 9453, 9461-9462, 9474, 9591, 9618, 9697-9698, 9719, 9745, 9845, 9857, 9888
Robinson, Brig. Gen. Clinton F.	9384, 9574
Robinson, Harold	9449-9450
Rogers, Col.	9287
Rommel, Field Marshal Erwin	9395, 9613, 9660
Royal Canadian Air Force	9290
Ruby, Glenn F.	9530-9531, 9855, 9883
Ruby (Glenn), report on Canol project	9378
Russell, Col. Carl A.	9411, 9413, 9418, 9484, 9843-9845, 9859
Russia	9296, 9302, 9310, 9339, 9395, 9402, 9409, 9417, 9430, 9536, 9599, 9612, 9849, 9877, 9880-9881, 9920

	Page
St. John, Fort.....	9289-9290, 9305, 9499, 9501, 9577, 9581, 9611, 9880
Saudi Arabia.....	9901
Sawyer, Ernest.....	9855
Scheid, Maj. Lee E.....	9337, 9421, 9425, 9887
Schlueter, V. B.....	9807, 9899
Seaboard Finance Investment Co.....	9383
Searls, Fred, Jr.....	9563, 9565, 9567, 9626, 9875-9879, 9883
Senate, United States.....	9424, 9571, 9605, 9934-9935
Severance, H. L.....	9733
Seward, William H.....	9604
Sherrell, Col. Fred G.....	9888
Sheets, H. F.....	9423
Siberia.....	9402, 9882
Simpson, A. M.....	9897
Simpson, Fort.....	9362-9363, 9908
Sinclair Oil & Refining Co.....	9702
Smith, Fort.....	9302, 9348, 9570, 9847, 9856, 9880-9881, 9908-9910
Smith, Harold D.....	9550, 9861-9862, 9865-9867
Smith, Phillip.....	9883
Smith, Ray W.....	9374-9375, 9413, 9484, 9502, 9842-9845, 9859
Smith, Capt. W. H.....	9875
Snow, Col. B. C.....	9337, 9483
Social Security Act.....	9741, 9811
Socony Vacuum Oil Co.....	9423
Solomons.....	9492
Somervell, Gen. Brehon B.....	9373-
	9374, 9381-9386, 9388, 9391, 9393, 9396, 9401, 9404, 9406, 9409, 9412,
	9418-9419, 9426-9429, 9435-9436, 9443, 9449, 9452, 9476, 9484, 9494,
	9502, 9507, 9510, 9519-9520, 9541, 9566, 9572-9576, 9581-9582, 9588,
	9591-9596, 9599-9600, 9610, 9615, 9618, 9623, 9643-9644, 9648-9649,
	9697, 9843, 9859, 9876, 9901, 9908, 9933-9934.
Standard Oil Co., Inc. (Alaska).....	9328, 9734, 9736-9738, 9778, 9782-9784
Standard Oil Co. of California.....	9301,
	9328, 9331, 9334, 9359-9360, 9444, 9620-9622, 9645-9646, 9664, 9693,
	9695, 9707, 9710, 9719, 9731, 9733-9734, 9736, 9743-9745, 9751-9766,
	9774, 9777, 9780, 9782, 9837-9838, 9861-9862, 9889-9891, 9921.
Standard Oil Co. (New Jersey).....	9342,
	9374, 9387, 9405, 9412-9413, 9421, 9452, 9480-9481, 9516-9518, 9522,
	9569, 9580, 9585, 9599, 9604, 9653, 9674, 9842-9846, 9849, 9859-9860,
	9883-9884, 9919.
Standards, United States, Bureau of.....	9334
State Department, United States.....	9313,
	9397, 9502, 9510, 9603, 9612, 9671, 9827-9830, 9845, 9908
European Affairs, Division of.....	9827, 9830
Secretary of.....	9604
Stefansson, Dr. Vilhjalmur.....	9374-9375,
	9378, 9387, 9391, 9400, 9405, 9447-9448, 9472, 9519, 9547, 9569, 9576-
	9578, 9580, 9599, 9608, 9632-9633, 9646, 9652, 9659, 9674, 9677, 9846,
	9849, 9855, 9881-9884.
Stevenson, A. K.....	9733-9734, 9744, 9751-9756, 9765, 9780
Stimson, Hon. Henry L.....	9527-9533, 9837, 9863-9864, 9889, 9892, 9915
Stottart,.....	9287
Street, Brig. Gen. St. Clair.....	9374
	9378, 9384, 9387-9388, 9395, 9398, 9402-9404, 9413-9414, 9417-9418,
	9429-9430, 9437, 9473-9475, 9483, 9500, 9505-9506, 9577, 9580, 9594-
	9595, 9600, 9606, 9615-9618, 9628, 9659, 9690-9691, 9842-9845, 9859
Sturdevant, Gen. C. L.....	9397, 9411, 9433-9434, 9448, 9474, 9498, 9575, 9858, 9883
Suman, John.....	9515, 9634
Superior Oil Co.....	9660, 9676
Sverdrup and Parcel.....	9620, 9754, 9763, 9889
Taub, E. S.....	9858
Taylor, Camp Zachary.....	9427
Teagle, Walter.....	9413, 9421, 9653, 9674, 9843, 9857-9858
Tennessee Valley Authority.....	9563
Texas Co.....	9701

	Page
Textor, Col. Gordan E.....	9875
Thomas, Senator Elmer.....	9934
Tolan, Lt. John H.....	9337
Trans-Jordan.....	9901
Treolite Co. of California.....	9921
Trippe, Juan.....	9411
Truman, Senator Harry S.....	9912-9915
Tully, Lt. Col. James K.....	9413, 9418, 9474, 9843-9845, 9859
Turkey.....	9659
Turnbull, J. Gordon.....	9620, 9754, 9763, 9889
Turner, C. N.....	9751
"Union Now".....	9549
United Nations.....	9536, 9901
University of Alberta.....	9334
University of Kentucky.....	9373, 9383, 9575, 9599
School of Mines.....	9520
Venezuela.....	9339
Vickery, Admiral Howard L.....	9658
Virgin Islands.....	9666
Wailes, Edward T.....	9827, 9830
Walker, Morgan.....	9413, 9453, 9455, 9463, 9480, 9516, 9843-9845, 9859
War Department.....	Appears throughout
Acting Secretary.....	9529, 9865
Air Forces, United States Army.....	9297,
9303-9304, 9306, 9310, 9373, 9378, 9384-9388, 9402, 9411-9417, 9429-	
9430, 9448, 9490, 9528, 9567, 9586, 9594, 9600, 9647, 9843, 9860, 9873-	
9874, 9878, 9932.	
Second Air Force:	
Commanding General.....	9483-9484
Air Transport Command.....	9867, 9872, 9905-9906
Army Service Forces.....	9481,
9507, 9519-9520, 9546, 9553, 9599, 9648, 9692, 9805, 9902, 9906-9907	
9921	
Fiscal Division:	
Chief of.....	9427, 9845
General Staff:	
Fiscal Director.....	9407, 9426-9427, 9652
Requirements Division.....	9906
Central Field Artillery Officers' Training School.....	9427
Chemical Warfare Service.....	9873
Chief of Staff, Office of.....	93 9372, 9628
Assistant.....	9693
Budget Division, Director of.....	9860-9861, 9867, 9924-9925
Legislative Liaison Division.....	9483
Chiefs of Staff, Joint.....	9509,
9535, 9541, 9590, 9602, 9606, 9613-9614, 9616, 9619-9622, 9631, 9648,	
9665, 9912-9915, 9935	
Arbitration, Permanent Joint Board of.....	9704
Meteorological Committee, Joint.....	9569, 9881-9883
Production Review Committee.....	9533, 9648, 9912-9913
War Plans Committee.....	9431
Engineers, Corps of.....	9337,
9356, 9411, 9416, 9425 9461, 9481-9482, 9498, 9513, 9552, 9557, 9761,	
9591, 9601, 9611, 9642, 9665, 9680, 9697, 9733, 9738, 9744, 9751-9755,	
9763-9765, 9777-9778, 9791, 9807, 9824, 9855, 9858, 9861, 9864, 9867-	
9868, 9885, 9902, 9924.	
Chief of.....	9364,
9374, 9384, 9386, 9390-9392, 9397, 9401, 9444, 9481, 9530, 9575, 9618,	
9642, 9684-9685, 9719 9798-9799, 9814-9815, 9839-9840, 9860-9864,	
9872-9873, 9877, 9888, 9895-9899, 9905.	
Construction Division.....	9526
Deputy Chief.....	9479

	Page
War Department—Continued.	
Field Artillery	9426-9427
G-2 Division, Intelligence	9524
G-3 Division, Operations and Training	9524
G-4 Division, Supply, construction and transportation	9383, 9386, 9576, 9702
Assistant Chief of Staff of	9384, 9698
General Staff	9353,
9384, 9416-9418, 9426, 9446, 9490, 9506-9509, 9594, 9601-9602, 9606,	
9616, 9658, 9661, 9675, 9690-9694, 9698, 9702, 9865-9866, 9878, 9906	
Budget Branch	9427, 9866
Chief of	9661, 9676
Operations Division	9341,
9413, 9418, 9429, 9476, 9480, 9600, 9606, 9845, 9859.	
Theater Group	
Deputy Chief	9473, 9489
War Plans Division	9659
Judge Advocate General Division	9840-9842, 9916
Medical Corps	9579
Northwest Service Command	9287,
9356, 9362-9363, 9368, 9474, 9558-9559, 9628, 9828, 9861, 9872, 9884-	
9885, 9888, 9902, 9905-9907, 9930.	
Procurement Section	9885
Ordnance Division	9873
Administrative Division, Chief of	9427
Property Accounting Division	9427
Public Relations, Bureau of:	
Press Branch	9918
Purchases Division	9791
Quartermaster Corps	9298, 9337, 9354, 9517
Fuels and Lubrication Division	9355, 9586
Chief of	9357
Secretary of	9359, 9391,
9406, 9502, 9519-9520, 9535, 9552-9554, 9561, 9599-9601, 9604, 9620,	
9627, 9644, 9661, 9675, 9695, 9719, 9729, 9722-9734, 9745, 9751, 9764,	
9779, 9806-9807, 9810, 9818, 9823, 9837-9838, 9861-9866, 9873, 9877,	
9889-9890, 9892, 9898-9900, 9902, 9908, 9915, 9918.	
Special Assistant to	9337, 9921-9928
Services of Supply	9340, 9373,
9413, 9551, 9565, 9655, 9657, 9678, 9702, 9843, 9859, 9875, 9888	
Fiscal Division, Budget Director of	9427
Resources Division	9413, 9845, 9859
Signal Corps	9873
Strategic Services, Office of	9569
Surgeon General	9873
Transportation Corps	9397, 9873
Under Secretary of	9287, 9353,
9370, 9373, 9387, 9406, 9510, 9526-9529, 9565, 9573-9575, 9644, 9661,	
9745, 9791, 9798-9799, 9808, 9811, 9814, 9819, 9827, 9840-9842, 9873-	
9879, 9883, 9912-9913, 9916, 9935.	
Office of	9483, 9596, 9607
Administrative Division	9427
Special Assistant to	9381
Western Defense Command	9490
War Mobilization, Office of:	
Director of	9553
War Powers Act, 1941, First	9734, 9743-
9745, 9753, 9763-9765, 9791, 9808, 9895, 9898	
War Production Board	9398, 9552, 9561,
9566-9570, 9625-9627, 9665, 9789-9790, 9863-9867, 9876, 9885-9888	
Chairman of	9553, 9562, 9571-9572, 9884
Planning Division	9569
Program Vice Chairman	9565, 9873-9875
Office of:	
Requirements Committee	9566, 9876
Facilities Bureau	9562-9564, 9567, 9626, 9875, 9878
Facilities Committee, Chairman of	9565

	Page
War Shipping Administration.....	9929
Wasson, Everett.....	9848-9849
Watson, W. G.....	9744, 9755, 9765, 9780
Watson Wake Airfield.....	9297
Wendell, Col.	9360
West Indies.....	9598
West Point.....	9426, 9600
Wheeler, O. C.....	9374, 9413, 9453, 9455, 9461-9463, 9480, 9504, 9842-9845, 9858-9859
White Pass and Yukon Route.....	9342, 9848, 9861
Whitehorse Refinery.....	9287, 9324, 9342, 9371, 9400, 9456, 9526, 9531, 9597, 9684, 9695, 9698, 9844, 9869, 9872, 9879, 9882, 9905, 9913-9914, 9918, 9924-9926
Whitney, H. LeRoy.....	9879, 9883, 9885
Wild, Lt. Col. J. M.....	9314, 9337, 9359
Wilson, Charles.....	9629
Wilson, Roberta L.....	9780
Whittaker, Brigadier General Frank.....	9431
Works Progress Administration.....	9549, 9869, 9872
"World Petroleum".....	9627-9628, 9883
World War I.....	9632
World War II.....	9880
World War III.....	9666, 9672
Worsham, Brig. Gen. L. D.....	9287, 9337-9338, 9685, 9707, 9910
Wyman, Col. Theodore, Jr.....	9338, 9359, 9696, 9706-9707, 9733, 9751-9755, 9824, 9852-9853, 9885, 9897

X



[illegible]

